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ORIGINAL ARTICLES.

THE NECESSITY OF SANITARY SUPERVISION OF SCHOOLS.

Read in the Section of State Medicine at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

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It is well known to physicians and others who have devoted attention to the subject, that many of the most disabling, painful and destructive maladies owe their origin or intensification to certain injurious influences of school life. Inasmuch as a good system of intellectual training should endeavor to avoid injury to bodily health, it becomes worth while to inquire what these injurious influences are, and whether they can be avoided, mitigated or removed.

Authorities in school hygiene assert that bad construction of school-houses, defective lighting and ventilation, inefficient removal of the bodily excretions or of the pernicious gases generated by their decomposition, improper school furniture and furnishings, such as seats, desks, blackboards, books, etc., deficient facilities for drying wet clothing, want of elementary knowledge of hygiene on the part of the teacher, over-study, carelessness on the part of parents or attending physicians, and many other causes needless to specify, are responsible for a large number of serious diseases, among which the following are the more important:

1. Nearsightedness.
2. Pulmonary consumption.
3. Spinal deformities.
4. Nervous and digestive disorders.
5. Contagious diseases.

1. NEARSIGHTEDNESS.

It needs no argument to show that nearsightedness is increasing. The large proportion of young persons compelled to wear glasses in order to use their visual organs to the best advantage testifies to this with sufficient emphasis. There is abundant evidence also to prove that this increase is due to the pernicious influences of certain unhygienic conditions to which children are subjected in the schools. For example: It has been shown, basing the conclusions upon the examination of nearly 100,000 school children in Germany and elsewhere, that in village schools less than *1 per cent.* of the pupils are nearsighted; in the elementary schools in cities, from 2 to 3 per cent., and in the grammar and high schools, from 4 per cent. in the lowest classes to over 50 per cent. in the highest. The percentage in some high schools and colleges reached a much higher figure, being 75 per cent. in one school in Vienna. Drs. Loring and Derby found a similar progressive increase in nearsightedness in the public schools of New York, although not to as great an extent as European observers have found. But it is not merely the proportion of nearsighted pupils that increases in the higher classes; the *degree* of the abnormality increases likewise, so that a pupil entering school with healthy eyes and normal vision will at the end of two years have a minor degree of nearsight, which in two or three years more will increase to a much higher degree, thus proving conclusively that the exigencies of school life determine the causation of the affection.

But it may be objected that this visual defect is a necessary accompaniment of school work, and that it cannot be avoided without entirely giving up educating children, or reducing their education to a minimum. To disprove this objection certain evidence is on record which could not be more apropos if the experiment had been made purposely. In the city of Coburg 2,323 children were examined in 1874, and showed an average of 21 per cent. of nearsighted pupils. The same number examined in 1877 showed an average of only 15 per cent. This marked reduction was accomplished by a better arrangement of seats and by better lighting in the schools. In some of the new schools erected between 1874 and 1877, in which hygienic principles were applied, the reduction in the proportion of nearsighted pupils was even greater than is shown by the average.

As the tendency to nearsightedness is hereditary and progressive, the time must come when the great majority of educated people will be nearsighted, unless measures are adopted to check its increase. The principal causes of nearsightedness in schools are:

1. Improper construction of seats and desks. A line dropped from the near edge of the desk should strike the front edge of the seat; if there is an interspace between the line and the seat the pupil cannot sit erect while writing or reading from a book resting on the desk. He is obliged to lean over forward, causing congestion of the eyes and consequent succeeding visual anomalies.

2. Bad lighting. An insufficient quantity of light or an improper position of the pupil with reference to the source of light. In a properly arranged schoolroom the light should come from the left side and a little above and behind the pupil. Daylight, which should be the only sort of light used in schoolrooms, should be diffused, and not enter the room as direct solar rays. This requires that the side of the room from which the light enters should face toward the north, in order to avoid direct sunlight. The proportion of clear window space to floor space should be as 1 to 5.

3. The distance of the objects to be seen, for example maps and blackboards, and their position with reference to the light. Letters and figures of the size usually made on blackboards can not be seen with normal vision at a greater distance than 30 feet. Hence, if the blackboard is placed at a greater distance, or the writing on the board is indistinct, the attempts to accommodate the eye to the greater distance will cause strain or other visual troubles.

4. Type, paper and printing of school books. No type of a smaller size than that known to printers as "long primer," leaded, should be permitted in any text-book. The paper should be clean and not translucent. Cohn, the highest authority upon this subject in the world, says that the school authorities should place every school book upon the *Index prohibitorum* in which smaller type is used than long primer, a less interval between lines than $\frac{1}{10}$ inch, a longer line than 4½ inches, and more than 60 letters to a line. He also says, with reference to the custom of printing matters of less importance in small type, while other portions of the book are printed in larger type: "What is unimportant should not be printed at all; but what is important should be printed in type of proper size."

5. Length of time of study. Lessons should be frequently varied, and care taken that two writing lessons should not immediately follow each other.

2. PULMONARY CONSUMPTION.

Of the 8,936 deaths from all causes in Baltimore during the year 1888, 1,151, or almost exactly one-eighth, were from consumption. It is notorious that in a large proportion of cases the seeds of this fatal disease are implanted in the youthful system during school life. Now, inasmuch as it is undoubted that badly ventilated and lighted apartments, and an improper position of the body, interfering with full expansion of the chest and free circulation, are strongly predisposing causes of consumption, it is important that the utmost attention should be paid to the removal of such conditions.

3. SPINAL DEFORMITY.

Five-sixths of the cases of spinal disease and deformity begin during the years of school life. The affection is over ten times as frequent in girls as it is in boys. Improperly constructed seats and an almost necessarily consequent bad posture of the body are responsible for the greater number of these cases. Defective lighting has often a decided influence in producing this disease by compelling the pupil to assume an improper position.

4. NERVOUS AND DIGESTIVE DERANGEMENTS.

These disorders, which frequently persist through life, rendering the individual a chronic invalid, are often results of defective ventilation, over-heating, or excessive mental strain. The influence of excessive brain stuffing in producing headaches and other nervous affections in school children has lately been called in question by teachers and others, who object to the pernicious activity of sanitarians in endeavoring to remove the bad conditions incident to school life. The results of an investigation by Prof. Bystroff, of St. Petersburg, show, however, that the influence of the customary intellectual *surmenage*, as the French style it, is not exaggerated. This author examined 7,478 boys and girls in the St. Petersburg schools during the last five years, and found headache in 868, that is, in 11,6 per cent. He states that the percentage of headache increases almost in a direct progression with the age of the children, as well as with the number of hours occupied by them for mental labor; thus, while headache occurred in only 5 per cent. of the children aged 8, it attacked from 28 to 40 per cent. of the pupils aged from 14 to 18. The author argues that an essential cause of obstinate headache in school children is the excessive mental strain enforced by the present educational programme, which leaves out of consideration the peculiarities of the child's nature and the elementary principles of scientific hygiene. The overstrain brings about an increased irritability of the brain and consecutive disturbances in the cerebral circulation. In view of these figures the appeal of a recent French writer for "un peu plus des muscles, un peu moins des idées" (a little more muscle, a little less brain) seems justified.

5. CONTAGIOUS DISEASES.

Sanitarians are practically unanimous in the opinion that the schools are frequent sources of the extension of contagious diseases. Small-pox, scarlet fever, diphtheria, mumps, measles and whooping-cough are probably spread as often

through the medium of schools as in any other way. Epidemics of these diseases always increase during the school season, and rapidly diminish when the schools are closed. Suspension of the schools has sometimes brought to an end epidemics of diphtheria which could not be controlled in any other way. The almost unrestricted manner in which children attend school from houses infected by one or other of the diseases mentioned gives the freest possible chance for the spread of these maladies. School boards usually require that all children attending school shall present a certificate of vaccination before being admitted, but it is an open secret that physicians have given such certificates without examining the arms of the children. What guarantee has the Board, what assurance have the parents of the thousands of other children that a child with such an uncertifying certificate may not come from an infected house, and so spread small-pox?

In what manner can the evils mentioned be removed or abated?

First, by securing proper construction, ventilation, heating, lighting and furnishing of school-houses; then by watching over the health of the pupils from the time of their admission to their graduation, correcting habits injurious to health, and preventing, by appropriate measures in conjunction with teachers, parents and the municipal health authorities, the spread of contagious or infectious diseases. This can only be successfully accomplished by the employment of an expert official appointed by the Board of School Commissioners and subject to their authority. I would indicate the scope of action and duties of such an official somewhat as follows:

An official, to be designated as "Sanitary Commissioner" or "Sanitary Supervisor of Schools," shall be appointed, whose duties shall be to examine all plans for new school buildings before construction, all new school-houses before acceptance, and all school buildings now in use, and suggest to the Board such changes as will make them more appropriate in a hygienic point of view. He shall examine all new pupils applying for admission, to determine whether they are vaccinated, vaccinate such as need it, keep a watchful care over the course of instruction, so that no children are over-burdened in their daily tasks, receive due notification, through the teachers or the health department, of any contagious disease among children attending the schools, or occurring in houses whence children are attending school, examine all text-books and give an expert opinion upon paper, type and print, and also upon the contents of such as pretend to give instruction in hygiene, before they are adopted. He shall give instruction, by lectures and otherwise, to teachers upon the principles and practice of school hygiene under such regulations as the Board may establish, visit every public school-room at least four times in every year, and make such suggestions for sanitary improvement as appear necessary. He shall also test the eyes of all school children as to their vision at least once every year, and keep an accurate record of these tests. He shall report annually, in writing, to the Board of School Commissioners upon the work he has performed during the year. Special reports may be required from him at any time upon questions coming within the purview of his duties, and he shall be at all times prepared to aid the Board with advice and suggestions.

Manifestly such duties as here outlined can be performed only by an educated physician who has given especial attention to hygienic questions both in their general and special applications. It is obvious that political services do not necessarily qualify a man for such duties; hence his appointment should not be contingent upon his political views or activity, but upon his merits as a student of hygiene. It must be likewise manifest that a physician with a large practice, or a popular surgeon, or an obstetrician with a fashionable clientêle, are not necessarily the best qualified for this service; in fact the sanitary supervisor of schools requires knowledge of a special character which the practicing physician rarely possesses, be he never so competent or successful in his own special field.

There is a tendency among the wit-snappers of the press and, I am sorry to say, among the medical profession likewise, to deride school boards for their ignorance of the principles of school hygiene. I am inclined to think this criticism is often unjust to the men who at a sacrifice of their time and comfort assume the important trust of administering the affairs of public education. In my native city, where the School Board is selected by the City Council, I am sure every member of the Board is thoroughly imbued with the responsibilities of his position and anxious to do the best he can to advance the cause of popular education and the interests of the pupils for whom he is responsible. I have found these men anxious to learn in what manner they could more efficiently discharge their duties, and when a plan was suggested to them they eagerly adopted it and asked the city government for power to carry it into effect. I have no doubt that the boards of education in other cities are composed likewise of public-spirited men whose desire to discharge their duties honestly and creditably is above all desire for personal advancement. The plan which the Board of School Commissioners of Baltimore asked leave (which has, unhappily, not yet been granted by the city authorities) to carry into effect is outlined in the following quotation from the report of that body for 1887:

"It is undoubtedly the duty of those in charge of the public schools to do whatever may be

necessary for promoting the health of the pupils, as well as their intellectual development.

"It is unfortunately true that many children are subject to deleterious influences during their school life, which not only impede their progress in school, but often permanently impair their health; and if it is possible to do so, the causes of these results should be prevented or removed. With this view the Board has recently asked authority from the City Council to appoint an officer who shall be a physician and expert in sanitary science, and who shall have general supervision of the sanitary condition of the schools, and whose duties shall be as follows:

"1. To carefully examine all plans submitted for the construction of new school-houses, and suggest such modifications as may be necessary from a sanitary point of view.

"2. To advise with the Commissioners with reference to necessary alterations in school buildings to improve their hygienic condition.

"3. To examine all text-books before adoption, in order that the type, printing or paper injurious to the eyesight of pupils may be avoided in selecting such books.

"4. To satisfy himself, by personal examination if necessary, that all the pupils admitted to the schools have been properly vaccinated or otherwise protected against small-pox.

"5. To take such measures, in connection with the Health Commissioner of the city, as may be necessary to prevent the spread of contagious diseases in or through the medium of the public schools.

"6. To examine annually the eyesight of the children attending the public schools, and to keep an accurate record of such examinations.

"7. To report annually, or as often as may be required by the commissioners, upon the sanitary condition of the schools and of the pupils attending them, and to advise the commissioners upon sanitary questions connected with schools whenever required.

"8. To give instruction, by lecture or otherwise, to the teachers in the schools upon the elementary principles of school hygiene.

"The Committee on Health has earnestly recommended the appointment of a sanitary superintendent for the schools, and believe that great benefit would result to the pupils, if such officer is well qualified for the position and faithfully performs the duties as above prescribed, and the Board requests your favorable consideration of this application."

I am disposed to believe that the reason so little attention is paid to the subject of school hygiene by school authorities generally is owing to the indefinite manner in which the subject is often presented to those bodies. Advocates of sanitary improvement too often seem to think that mere assertion is all sufficient and will carry conviction. This is a mistake. Facts must be collated and arranged in such a manner that their significance can not be otherwise than in their true relations, and it will then not be difficult usually to convince intelligent public men of their importance.

I trust that the members of the Section of State Medicine are fully imbued with the necessity of the reform in school administration which I have advocated. I am quite sure that the presentation of facts which I have made here was unnecessary to impress its importance upon you; but I would suggest that in any movement to secure the results which must flow from the adoption of these measures, the advocates will so fortify themselves with the facts at command as will enable them to present a case to the public in which the evidence is all relevant and the testimony unimpeachable.

DR. W. L. SCHENCK, of Kansas City, said: Though Dr. Rohé's discussion of his subject has been full and full of valuable information, it cannot be exhausted in twenty minutes. At the National Association of Railway Surgeons held the other day at St. Louis, prominent on the platform was displayed this sentiment: Surgery and Hygiene—the medicine of the twentieth century. Then this will be the Section of the American Medical Association. We sometimes sing:

"Youth is the time to serve the Lord,
The time to receive the rich reward."

It is the time to lay the foundation upon which to erect a superstructure that shall stand and withstand; the time to develop strong and healthy bodies through which mind and soul shall find opportunity to serve God and man.

The author of the paper has very properly emphasized the importance of preventing schools from becoming depots for the reception and distribution of infectious and contagious diseases. They bring together children from all classes and localities, so that if the nidus of contagious disease finds lodgment in the district it may, without proper sanitary inspection and supervision, be carried to every home.

Childhood may or may not be more susceptible to such diseases than adult life, but its virgin soil has not had opportunity of exemption through contact and contract, and certainly some of the zymotic diseases, as scarlet fever, diphtheria and small-pox, are especially fatal in early life. The health interests of every community demands that our schools should have intelligent supervision, and at the first appearance of contagious disease separation and isolation, and always vaccination.

The children of all civilized nations spend a large portion of their time in the schoolroom, and if they escape its mortal perils they carry thence the physical, mental and moral development and habits that shall govern their future lives, hence we cannot too strongly impress the importance of scientific school hygiene.

In America schools are controlled by directors ignorant of sanitation and chiefly anxious about their economic arrangement, and as teachers reflect the sentiments of the directors, the difficulties do not lie so much in sanitary science as in the difficulty of impressing the people with its importance.

Take one of the simplest problems in sanitary science. Pure air is necessary to the oxidation and decarbonization of the blood, and is Nature's antiseptic and disinfectant. By its universal distribution Providence has so emphasized its importance that "a wayfaring man, though a fool, should not err," yet ninety-nine out of one hundred school buildings are without proper arrangement for ventilation, and too often where the architect has made proper provision the ignorance or stupidity of janitor or teacher thwarts his purpose. Some one who comprehends its importance should see that the schoolroom is constantly supplied with pure air, warmed before it is admitted and removed as fast as it is contaminated. Our schools fail alike to protect the health and life of children placed under their care for protection and development, and to teach them the importance and the methods of protection. Every school district is a field ripe for the scientific sanitarian. How shall teachers teach and apply that which they do not understand, and how shall they learn without a teacher? Every academy, normal school and college should have a department of preventive and State medicine, that their pupils may carry thence into the various departments of life the knowledge that shall enable them to protect themselves and the community in which they reside against disease and premature death,

There are many and varied sanitary questions of vital importance to the school, to parents and the State, whose neglect brings disease and death where there should be life, health and growth. Among the more important we might name the location of the school building with reference to air, light and water, soil, drainage and general surroundings, seats, and commodes, school methods, false stimulants to study, overwork, underwork, machine work; all bearing upon the physical and intellectual health and life of the pupil and proper subjects for sanitary inspection and instruction.

There is a time in the history of all civilizations when the belief prevails that physical punishment is the "schoolmaster to bring us to Christ," but as civilization advances we learn that "all his ways are wisdom's ways and all his paths are peace." In the United States, save at the hearthstone and in the schoolroom, the whipping post is abolished, and it only lingers there because cowards can flog unresisting infants with impunity.

In the city of Boston, which we were wont to consider in the forefront of civilization, though the pupils in the high school, who are old enough to resist, are not flogged, 18,000 corporal punishments were administered last year in the grammar and primary departments of her public schools, and for the past five years the record shows the number of whippings has about equalled the number of pupils. What a commentary on our civilization! The only apology offered is that many of them were wild, which only demonstrates the fact that many of them could have been dispensed with. That they were not excessive is probably due to the fact that the temper of the teacher was under partial control. If any benefit can arise from the use of the rod it should generally be applied to the teacher who uses it. It is the story of the old Scotch minister. When a brother told him he had the sexton go around to wake up those who slept when he preached, the Scotchman replied "An' wad it na' be be better to wake up the minister." The rod is brutal and brutalizing. It debases mentally and morally both teacher and pupil. With every educational method the question must be, does it implant in the mind a desire for knowledge for the sake of knowledge, a desire to do right through love of right? Education on this basis always strengthens, uplifts, enlarges, is always hygienic. The true teacher, filled with the grandeur of his vocation, maketh his pupils "to lie down in green pastures, he leadeth them beside the still waters, he restoreth the soul." The rod is the measure of his incapacity. While we may not know the essence of spirit and are unable to say whether it is an original creation or whether monad, bivalve and simian marked the weary way to its coronation in man, we find it moulding and developing the tenement in which it dwells, and in turn through its agency being moulded and developed into grander proportions. Man is not a sphynx-like mixture of angel and beast, the possibilities of the angel lying in the mortification of the beast. The thought that the spirit is to be brought into subjection by the mortification and flagellation of the body finds no place in scientific hygiene. Aught that injures the casket injures the jewel it contains. The full and harmonious development of the spirit is through the perfect health and growth of the body, "*mens sana in corpore sano.*"

When the motive for spiritual growth is either hope of reward or fear of punishment, the end is attained only when the motive is removed. They dwarf and destroy the desire and capacity for perpetual growth and tend to moral, intellectual and physical disease. There is a wrong method and a wrong motive. Fear cannot develop true heroism, but tends to timidity, sullenness and revenge, and both lead to irritability, nervousness and physical disease. Aught that injures the spirit injures the body in which it dwells,

> "For of the soul the body form doth take,
> For soul is form and doth the body make."

It is important to the State and to humanity that the schools where the children of the nation are placed for culture and growth should be under the constant supervision of those who understand the laws of life and all that tends to its deterioration.

DR. LINCOLN, of Massachusetts, said he had found the standards of all description vary according to the authority adopted. Even authorities differ, and hence we need the opinions of the best.

Resolutions regarding the formation of a committee to inquire into the advisability of securing such legislation as Dr. Rohé had suggested were introduced by Dr. Lincoln.

Resuming the discussion DR. PINKHAM, Chairman of Sanitary Committee for the schools in Lynn, Mass., said that he had been engaged in such work for several years, and his committee is granted for this purpose $2,000 per year. He had found deficiency in ventilating and lighting in all the buildings under the supervision of his committee. Reports were made to the State Board of Health and many reforms have been carried out.

DR. BELL, of New York, said that some of the suggestions made had already proved impracticable. Thorough exposure of the evils is the most important way of abolishing an evil. The general sanitary authorities of the cities are getting stronger than the school boards, and properly so. In general the boards of education have opposed the necessary hygienic regulations.

DR. GIHON, U. S. N., said he had been a school inspector and had always found schools unhygienic; and furthermore, he had always been opposed in his work by the school boards. He supported Dr. Lincoln's resolutions.

The resolutions were then adopted and Drs. Lincoln, Rohé, Reed, Schenck, and Pinkham were constituted a committee to take the matter in hand.

THE HUMORAL PATHOLOGY, OR TOXIC AGENTS IN THE BLOOD AS A CAUSE OF DISEASES OF THE NERVOUS SYSTEM.

Delivered in the Section of Practice of Medicine, Materia Medica and Physiology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY M. R. CRAIN, M.D.,

OF RUTLAND, VT.

It is unnecessary for me to go into the history of the humoral pathology, as held by physicians for so many centuries, with their crude and erroneous ideas, as well as the opposite doctrine which followed, *i. e.*, that all morbid processes originated in the solids.

The latter as an exclusive theory is equally absurd. Thos. Watson, after speaking of the two above named theories, says: "The pendulum of opinion swung at once, as is usual, into the opposite extreme of error. It is now settling in our time at the juster medium. Reviewing, under new and more faithful evidence, the humored doctrine again asserts its rightful, but modified claims upon our acceptance. That its old extravagances still find favor among the ignorant, and are commonly adopted by the quack, are circumstances which illustrate the fact that the mischievous influence of unsound theories survived the duration of the theories themselves. The scientific physician of the present day can only wonder how solidism or exclusive humoralism should ever have found advocates." Although the above was uttered by Watson more than forty years ago, few since that time have taken as candid view of the subject as he did, and the tendency has been towards solidism. The scientific mind of the present is very skeptical and accepts no vague theories. Everything must be proven, in fact must be perceived by the senses.

The microscope gave a great impulse to solidism by enabling us to discover lesions that could not be seen with the unaided eye, and to study the minute structure of coarser specimens. While this is true in general medicine, it has been carried to a much greater extent in neurology. The neurologists of the present and near past have been striving to find some change in the structure of the nervous tissue to account for every perverted function of the nervous system. Although I do not underrate the importance of studying the minute structure of pathological specimens in diseases of the nervous system, it is fully as important to try and ferret out the cause of the lesion, also, in cases where there is no change in structure, to find the cause of the perverted function.

In many cases the exciting cause of the change in structure and, where there is no change in structure, the perverted function, is some unnatural or toxic condition of the blood. Of course I do not wish to convey the impression that it is a new idea that organic disease or perverted function of the nervous system can be caused by a toxic condition of the blood. Far from it, for we are all familiar with the effects of alcohol or an excess of urea in the blood on the nervous system. We live in a period in which great strides are being made in preventive medicine. Although the greatest advance is being made in preventing zymotic diseases, yet good work is being done in other branches.

Infectious diseases are caused by the introduction of germs into the system, but the symptoms of the disease are caused by a chemical poison, viz.: a ptomaine which is produced in the body by the microörganism. Many diseases of the nervous system are likewise caused by a toxic agent in the blood; some suddenly, others insidiously, by the tissues being continually bathed with the toxic agent.

My object in writing this essay is to bring the subject before you, that you may be constantly on the alert to detect the toxic agent and to eliminate it, or prevent its further formation or introduction into the system before it shall have produced irreparable damage to the nervous system. In the past few years there has been considerable work done in this direction, although not all from the same standpoint, as our knowledge is still meagre and unsystematized. Brunton, in his volume entitled "Disorders of Digestion," which is made up of miscellaneous papers, treats of the subject of nervous disorders caused by poisons, formed during imperfect digestion, very pleasantly and scientifically. Dr. A. M. Brown has treated the subject of nervous disorders caused by toxic agents produced in the body, viz.: ptomaines, leucomaines, etc.; also does Sir William Aiken, in his little work entitled "The Animal Alkaloids, viz.: the Ptomaines, Leucomaines and Extractives in their Pathological Relations." In 1888 Drs. Vaughan and Novy wrote a work entitled "Ptomaines and Leucomaines," which embraced all of our exact knowledge on these subjects up to that date, including a bibliography of the same.

Dr. Thomas Buzzard, in the Harvarian Lectures for 1885, treats very fully of the toxic agents in the blood producing multiple neuritis, also does M. Allen Starr in the Middleton Goldsmith Lectures for 1887. Fothergill, in his work entitled "Vaso-Renal Change versus Bright's Disease," claims that chronic Bright's disease, instead of being simply a local affection, is a complex pathological condition, caused by an uric acid diathesis; that the uric acid circulating constantly in the blood produces an irritation of the vaso-motor centre, which in turn produces the structural changes of the heart, kidneys and blood-vessels.

Da Costa, in the Middleton Goldsmith Lectures for 1888, entitled "On the Relation of the Diseases of the Kidney, especially the Bright's Diseases, to Disease of the Heart," brings forth five hypotheses or theories as to the cause of said pathological changes; the first and second claiming that the cause of the organic trouble is impure blood, which causes a contraction of the arterioles, which in turn causes the organic changes in the heart and kidneys. The third and fourth theories claim substantially that the structural changes in the heart and kidneys are produced by an organic change in the coats of the arterioles, thereby diminishing their calibre and increasing the resistance to the flow of blood. The third and fourth theories are substantially the same as the first and second, only the former begin at a later stage of the same pathological process. Fothergill has shown pretty conclusively that the organic changes in the arterioles are produced by the increased blood pressure caused by a spasm of the arterioles, which is caused by blood laden with toxic matter producing an irritation of the vaso-motor centre. The fifth view, which in its main features flows out of some researches made by Drs. Da Costa and Longstreet, is that the original lesion is situated in the nervous ganglia. It is probably there that the trophic centres of the heart, kidneys and blood-vessels are located, although Da Costa seems to differ from Fothergill in that the original seat of disease is in the nervous ganglia. The discrepancy is more apparent than real, for Da Costa says: "I would thus locate as most likely the original starting point of the alteration of the vessels and of the heart muscle, in the nervous ganglia, in the parts of the nervous system controlling the nutrition of these textures.

"What the ultimate cause of the lesion is cannot be stated, nor need we assume that one cause alone will determine it. It may be gout, it may be lithæmia, it may be rheumatism, it may be alcohol, it may be lead, it may be purely perverted nervous functions from worry, from strain or from anxiety. Any one of these causes may start that alteration in the ganglionic nervous system which leads to degeneration and to the formation of increased fibrous tissue, and subsequent atrophy, and with it also to derangement in the heart and in the muscular textures supplied by the affected ganglia and nerve filaments." Thus we see that although the first anatomical change occurs in the nervous centres, the ultimate cause (according to Da Costa) of such change, is either a toxic condition of the blood or perverted nervous function from worry, etc.

We are not satisfied in the present, as many seemed to have been in the past, in finding the structural changes that have taken place, but we search further and endeavor to find the causes of such changes, in hopes that we may remove the cause before irreparable change in structure has taken place.

It is difficult in the present state of our knowledge to properly classify the various disorders of the nervous system that are due to a toxic condition of the blood; but in the present paper I will classify them according to the location of the lesion, hoping thereby to facilitate the study of the subject. First commencing with the peripheral nerve, we have multiple neuritis, which is nearly always caused by a toxic condition of the blood.

Cases caused by toxic agents introduced into the body. The most common one by far is alcohol, and it is a singular fact that most cases of multiple neuritis due to alcohol occur in females. The other poisons that produce multiple neuritis when introduced into the blood are arsenic, lead, and probably bisulphide of carbon and illuminating gas.

Second. Neuritis in zymotic diseases. The poisons of zymotic diseases are very productive of multiple neuritis. Those that are known to produce it are the poisons of diphtheria, variola,

typhoid and typhus fevers, severe malarial fevers, dengue, beriberi, and I have seen one case that was caused by erysipelas, and another that followed erysipelas and rheumatism, so it was doubtful which was the cause of the neuritis.

Third. Other blood states that are productive of multiple neuritis are those incident to gout, rheumatism, syphilis, septicæmia and leprosy. I have seen some cases that were probably cases of mild multiple neuritis in lithæmia, although the symptoms were not well enough marked to make the diagnosis absolutely certain.

Neuralgia.—I take up this subject at this point as a matter of convenience, keeping in mind at the same time the fact that neuralgia is of central origin, and when dependent on a toxic condition of the blood it is caused by the toxic agent irritating the central terminations of the nerve fibres, *i. e.*, the nerve cells. The blood states that produce neuralgia are diabetes, gout, rheumatism, syphilis, typhoid fever, malaria, lithæmia, uræmia and the various toxic agents that are produced by disorders of digestion. Some cases of neuralgia that are due to disorders of digestion are reflex, but the large majority are undoubtedly toxic.

There is a class of cases in which there is numbness of the extremities, more particularly of the hands and forearms, in which there are no symptoms of organic disease. Some of these cases are without doubt toxic. They occur in uræmia, lithæmia and alcoholism. It probably occurs in other toxic states, but we have no exact knowledge in regard to the subject.

Diseases of the Spine.—Acute myelitis is sometimes caused by the poisons of variola, typhus and typhoid fevers, rheumatism and puerperal fever. It is doubtful if acute myelitis is ever caused by syphilis or alcoholism, but they each undoubtedly cause subacute myelitis.

Chronic Myelitis.—The only blood poisons that are known to produce chronic myelitis are syphilis, alcohol and lead.

Acute Atrophic Paralysis.—It is doubtful if this affection is ever caused by the blood state, although it sometimes follows scarlet fever and measles, and in older children and adults typhoid fever and ague.

Acute Ascending Paralysis.—This disease is caused by the poisons of small-pox, diphtheria, typhoid fever and syphilis. Spinal hæmorrhage is caused indirectly by the action of the poisons of syphilis and alcohol on the coats of the blood-vessels.

Locomotor Ataxy.—In this disease the only blood state that seems to have a causal relation in many cases is syphilis, and although about 70 per cent. of the cases of locomotor ataxy are caused by syphilis, it does not seem to be so much the blood state that causes the disease, but it is rather a degenerative sequel of syphilis than a true syphilitic disease. The lesion is not syphilitic in histological character and the disease is rarely influenced by antisyphilitic treatment. A few cases seem to be caused by rheumatism, typhoid fever and alcohol.

Primary Spastic Paraplegia.—Syphilis seems to be the cause of this disease in a few cases, as it does also of some other degenerative diseases of the spinal cord.

Diseases of the Spinal Membrane.—Acute internal meningitis is sometimes caused by the poisons of scarlet fever and typhoid fever, acute rheumatism and septicæmia. Cronic internal meningitis is sometimes caused by the poison of syphilis, also by alcohol. Spinal meningeal hæmorrhage is sometimes caused by the blood state, as in puerpura, and in the hæmorrhagic forms of some acute specific diseases.

Cerebral Disorders.—There is no part of the nervous system that is as susceptible to the influence of toxic agents as is the brain, and it is not to be wondered at when we consider its delicate and complex structure and the diversity and complexity of its functions. The abundance of the blood supply to the brain, which is necessary for its functional activity, renders it all the more susceptible to the influence of toxic agents. Our knowledge of the etiology of cerebral disorders is so imperfect that it is difficult to treat the subject systematically, but I will try and present the subject in as practical a manner as I can.

First, taking diseases of the membranes. Hæmatoma of the dura mater or internal hæmorrhagic pachymeningitis is sometimes caused by the septic blood of typhoid fever, small-pox, etc., and frequently by the prolonged use of alcohol. Purulent meningitis is always (so far as I know) a secondary disease. As Stumpell says: "We should therefore seek most carefully in every case of purulent meningitis at the bedside, and more particularly at the autopsy, to discover the way by which the pathogenic virus reaches the meninges." The toxic agent is sometimes the specific poison of the various zymotic diseases, as the septic material that is developed in the later stages of the malignant form of zymotic disorders, also the septic poison from various wounds, abscesses, ulcerative endocarditis, etc.

Tubercular Meningitis.—Most cases of tubercular meningitis are secondary to the lung trouble, and the septic material is probably carried to the pia mater through the medium of the blood. When the meningitis is primary the virus or bacillus is carried to the pia mater through the medium of the blood, but why the bacilli should attack the pia mater and not the lungs, or other tissues, we do not know, but the age of the patient seems to have some influence. Thrombosis of the cerebral sinuses is sometimes caused by the specific virus of severe zymotic diseases.

Disturbance of Circulation in the Brain.—In many cases of hyperæmia or anæmia of the brain

the blood is not always toxic, as there may be simply an excess or deficiency of some of its normal constituents. There are many toxic remedies that influence the circulation of the brain. Alcohol, nitro-glycerine, nitrite of amyl, small doses of opium and many other remedies increase the blood supply to the brain; some by increasing the heart's action, as in the case of alcohol; others by dilating the arterioles and capillaries, as is the case with nitrite of amyl. Ergot, the bromides, chloral hydrate, veratrum, gelseminum and some others diminish the blood supply to the brain. Ergot, for example, accomplishes the result by contracting the arterioles, while others, like veratrum, produce the result by their action on the heart. Alcohol is the most prolific cause of cerebral hyperæmia, and it seems to be caused also by the poison of most acute specific diseases, as well as general plethora.

We are all familiar with cases of cerebral hyperæmia in patients that have disordered digestion with constipation. In these cases the hyperæmia is probably caused by poisons formed during imperfect digestion and absorbed into the circulation.

Anæmia of the brain is caused by loss of blood, and general anæmia by many drugs and poisons that are introduced into the body, as well as some toxic agents that are formed in the system, viz.: an excess of urea and probably also a curara-like poison formed during imperfect digestion and studied by Brunton, also an atropia-like poison, and likewise peptones, ptomaines, etc.

Cerebral Hæmorrhage.—A healthy artery probably never ruptures from blood pressure. Some pathological changes in the coats of the arteries are necessary as a predisposing cause; the most common change being miliary aneurism. The most prolific causes of the pathological changes in the coats of the arteries are alcohol and the poisons of gout, viz.: uric acid, also Bright's disease and the virus of syphilis. Thrombosis is frequently caused by syphilis.

Tumors.—Syphilitic and tubercular tumors are caused by the virus of their respective diseases.

Insanity.—There are a few forms of insanity that are caused by toxic agents, viz.: alcoholic insanity, syphilitic dementia and saturnine insanity. Syphilis and alcohol also play an important part in the production of many cases of paretic dementia.

Convulsions.—Although there are many toxic agents that will produce convulsions, those produced by an excess of urea are by far the most important—whether they occur in the puerperal state or not.

Neurasthenia.—Neurasthenics form a large class of our patients, and we are apt to think that all cases are caused by overwork or worry, and not look farther for a cause; but there is a large class of patients in the cities and larger towns of sedentary habits that are not overworked and that are well nourished, They go to their physician, and he says, "You are run down;" and he prescribes a tonic. The patient returns soon and is no better. Perhaps you prescribe another tonic and he returns again without any improvement, and then you tell him that he must leave his business and go into the country for a rest. While in the country he takes long tramps, fishing or hunting, or climbing mountains sightseeing, thereby getting more exercise in a week than he would in a month at home. In two or three weeks the patient feels strong and vigorous; his spirits are buoyant, and he feels that the change of air has produced the cure; but how sadly is he disappointed when, two or three weeks after his return to his counting room or office, he finds that he is as bad as ever. How do we account for this condition of things? It is simply this: he is not overworked, but he is overfed. He takes no exercise, and he keeps up his appetite with relishes, condiments and perhaps wine, so that he is enabled to take into his stomach two or three times as much as the laborer that works on the highway. Thus we see that the depression is caused by an excess of food.

The patient takes into his stomach more than he can assimilate, and the products of imperfect digestion are absorbed into the circulation, where they act as poisons to the nervous system. We can compare the patient to a stove. We put on the fire fresh coal before we remove the burned out waste material from below; now we find that instead of our fire burning briskly, it is more deadened and useless than before. If we had removed the products of waste by shaking it down the fire would soon have brightened up; so it is with our patient.

I have omitted some affections that are sometimes caused by a toxic agent in the blood—but, fearing that I will weary your patience, I will conclude this paper with the subject of headaches.

There have been many attempts to classify headaches; some systems are very complicated, others very simple, but all are open to objections, and no system, in the present state of our knowledge, can be faultless.

One author simply divides them into two classes, viz.: anæmic and hyperæmic. He claims that this classification tends to simplify treatment, but I think it tends to mislead one, as the following will illustrate:

Mrs. S., æt. 35 years, was sent to me by Dr. P. She complained of severe and persistent headaches and nothing else. Dr. P. made an ophthalmoscopic examination and he found optic disc anæmic.

The arteries seemed wiry, and I concluded that it was a case of anæmic headache due to spasm of the arteries, and put the patient on nitro-glycerine. It gave her relief, but the pain would return as soon as the effects of the remedy wore

off. I ordered her to save me a sample of her urine. I found that it was loaded with lithates. I then put her on a course of blue pills, saline purgatives and alkaline diuretics, and ordered her to abstain from eating meat. She made a speedy recovery.

Thus we see that we had an anæmic headache that was in fact a toxic one. The most common toxic headache is probably produced by alcohol, with the possible exception of the digestive headache. Although some digestive headaches are undoubtedly reflex, they are nearly all toxic.

There are a great many toxic agents that are capable of producing headaches. Among the most important are alcohol and the various narcotics—lead, impure air, various gases, viz.: illuminating gas, carbonic oxide, sulphuretted hydrogen, etc. There is the poison of various zymotic diseases, of gout, rheumatism, diabetes, Bright's disease; and there is the uræmic headache and the headache of lithæmia. It therefore behooves us in every case of nervous disease not only to locate the lesion (if the disease be organic), but to examine carefully and ascertain if there is any toxic agent that is producing the trouble.

SOME CASES OF INFLAMMATION AND ATROPHY OF THE OPTIC NERVE WITH SPECIAL REFERENCE TO ETIOLOGY AND PROGNOSIS.

Read in the Section of Ophthalmology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

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Of all diseases of the eye and its appendages, none are more perplexing to us as regards etiology and prognosis than are those of the optic nerve. Inflammations and atrophies of said nerve are easily diagnosticated, but when asked the question, what caused this or that inflammation or atrophy? or, what will be the result? then do we often find ourselves unable to answer. Some of them may be read as easily as an open book while others upon the contrary baffle us at every turn, and though every opportunity may be offered by the patient objectively and subjectively, still sphinx-like the cause forever remains to us a sealed scroll.

Take for example the two cases which follow:

Case 1.—J. D., aged 38, occupation baggage master, a fine looking man the picture of health, who came to see me about his failing sight which was found at that time to equal $\frac{2}{10}$ in either eye, the ophthalmoscope revealed well marked commencing atrophy of the discs, which contained fewer nutrient vessels than normal. A most careful examination of this patient, objectively and subjectively, failed to give any clue as to the cause of the change above mentioned. He never had syphilis, rheumatism, kidney or heart trouble, spinal disease of any kind, nor was he troubled with any affection attributable to malaria. He used neither alcoholic beverages, nor tobacco in any form. I put him upon increasing doses of the iodides for some weeks, but as no good results followed, hypodermic injections of strychnia were used, beginning with small and ending with large doses, but in spite of this, his vision slowly but steadily decreased in acuity until it fell to $\frac{1}{200}$, where it remained for 9 months, when I lost sight of him, he having left the city.

Case 2.—C. S., aged 23 years but looks much younger; indeed he has the appearance of a boy; height 4 feet 11 inches, weight 90 pounds. His sight commenced failing in the left eye sixteen months ago while engaged in drafting in an architect's office in Minneapolis, Minn. He soon consulted an oculist of that city, who diagnosticated commencing atrophy of the left optic nerve. His vision slowly became worse, until about three months ago when he could not see any object with it. Again did he consult the oculist, when complete atrophy of the nerve was found to have taken place; but no cause for it could be discovered. Another able oculist was called on, who found as did the other gentleman, nor could he arrive at any definite conclusion as to its cause, nor could either of them tell the young man or his relatives as to the probable result in the other eye; they feared however that it would be attacked also. He called on me June 2nd, 1889, when I found as did they, white atrophy of the left optic nerve with vision equal 0, and in the right the disc looks a trifle whiter than normal, vision equals $\frac{18}{30}$ nearly (misses two letters in the line). The eyes looked natural externally except the appearance of a slight insufficiency of the internal recti muscles; the pupils are of equal size, but when the right eye is closed by holding a handkerchief over it the left pupil does not respond to the brightest light. I have questioned him and his sisters in every way in order to arrive at its probable cause, but only get the following history: Father and mother both dead, the former from gall stone, the latter from consumption. His sister says "Carl has had vomiting spells at different times for at least thirteen years. They have never seemed to occur at any special time of the day, and seldom have they occurred when we could feel that there was a cause for them, nor have they come on at regular intervals. They usually begin with a dull headache soon followed by vomiting, which continues (during the severe attacks) for hours and sometimes days. The vomiting is usually followed by sleep. He vomits great quantities of mucus and bile. The intervals between vomiting are not regular, sometimes not more than fifteen minutes apart, again a half an hour or an hour or more. He always

looks very pale about the mouth and nose, the latter having a pinched appearance. We feel that these attacks have become less frequent and less severe. In the last three years I do not think he has had more than four attacks, during which the vomiting has lasted a day and night, yet he has had others less severe when he looks pale, is sleepy and has no appetite."

It will be seen from the above that his sight did not begin to fail until after these paroxysms of vomiting had become less severe. He never had any symptoms of malarial poisoning, no spinal symptons, nothing to indicate tumor of the brain. His urine is normal.

Remarks: The two cases given above are typical of many similar ones which we all very frequently meet with. Doubtless, there is not a person present of ten years' experience in this specialty, who has not had at least forty similar cases. I have watched many such, where both nerves have failed; as in case No. 1, and though the cause forever remains obscure during life, and doubtless even an autopsy would give negative results, the prognosis in such cases is that though they may remain stationary they never improve. As regards the prognosis in case No. 2, the question usually asked is, am I liable to become blind in the other eye? Unfortunately, the physician first consulted over a year ago, does not give the exact acuity of vision, he simply recorded vision in right eye normal. If it was $\frac{20}{20}$ a decrease has already taken place, as it now only equals $\frac{18}{30}$. It is more than likely though, that the young man's accuity of vision never was greater than $\frac{18}{30}$, or possibly, when the left eye failed the right participated and has remained stationary since. From many similar cases which I now remember having seen my prognosis would lean to the belief that as the left went so rapidly, and an interval of over three months having elapsed, in which the young man has noticed no change in the other eye, the cause which led to the atrophy has expanded its force on the left and has ceased to exist.

Case 3.—Mrs. H., aged 28, mother of two children, the youngest two years old, was attacked with a pernicious intermittent fever on the 21st of August, 1878, she became stone blind immediately. I saw her in consultation with her physician seven days afterward and made the following record: Pupils widely dilated and fixed, eyes have the peculiar expression of one totally blind, balls move in every direction (they were said to have been fixed for several days after the attack), cannot perceive the brightest light. Phosphines not produced when pressure is made over the region back of the ora-serrata, vessels of discs and retinæ look as small as threads. The supposition being that there was an effusion of serum at the base of the brain, she was treated with counter-irritants on the back of the neck and given increasing doses of the iodide of sodium and tonics. She began to discern light in about two weeks, and in two months large objects, but relapsed and remained blind for six months. My second examination found the optic discs almost as white as glistening pearl, with no nutrient vessels in them and the central vessels small as threads. For several years she could only distinguish between light and darkness, but, after six years her vision began to improve and in the spring of 1888, ten years after she was first attacked, her vision equalled $\frac{20}{200}$, and she can now drive her phaeton over the familiar roads. Several other cases of amaurosis have I seen, which were caused by severe forms of intermittent fever, but this is the only one which improved after so severe and well marked atrophy of the discs.

Case 4.—A young man aged 18 years became suddenly blind while playing violently at base ball. He called on me a few days afterward when neuro-retinitis with terribly choked discs, and hæmorrhagic patches over the fundus of each were manifest. He could not see a ray of light with either eye. He was leeched very freely on the temples, and salines were administered. One eye remained permanently blind, with the snow white disc; but, after a few months the other so improved as to enable him to teach a country school, and at my last examination, five years subsequently, his vision equalled simple perception of light right and $\frac{20}{40}$ left.

Case 5.—Mrs. P. B., aged 27, mother of three children, the youngest one year, then nursing. She brought me a letter from her physician who stated that he was treating her for sub-involution of the uterus, when she took a violent headache and in three days became entirely blind. My examination showed that she could not see a ray of light, the pupils were dilated to the utmost, and unmovable, T+½ each eye, the discs were fearfully choked, arteries almost invisible, veins very tortuous, and only to be seen in places. She had a very thick short neck and flushed face, with ears as red as a boiled lobster. Salines were given, leeches were applied every few days, the child was weaned, and increasing large doses of the iodides with bromides were given. She began to see the light in three days, then large objects. They steadily improved until her last visit, three months after the last attack, when vision equalled $\frac{20}{30}$ either eye.

The two cases above were of the congestive type, in which the prognosis is usually highly favorable.

Case 6.—Mr. A. McC., aged 23 years, was sent to me in February, 1883, with a letter from his physican saying: I was called to see him last August when he had a high degree of fever, headache and vomiting, which lasted five days; his temperature was 103°; has had three similar at-

tacks since and has just recovered from one; have given him bromides, strychnia, etc. On questioning the patient I learned that he had been treated by another doctor for a chancre and buboes long before the physician who sent him to me had seen him. I found double optic neuritis with choked discs and dilated pupils, with vision equal o. I wrote to his physician suggesting that he treat him for basilar meningitis, with very large doses of the iodides. He became better but I never learned what the acuity of vision equalled.

Case 7.—Miss S. S. D., aged 22, a delicate refined looking lady teacher in a seminary, brought to me by her physician who supposed she had hysteria; he told me that he did not think it necessary that I should see her, but on the importunity of her friends had brought her, that he had examined her eyes with the ophthalmoscope, had found no structural trouble, and had so informed her, and also predicted that as soon as she gained a little more strength she could resume her school work. He informed me that she had been taken quite seriously at first with a very intense and persistent headache and vomiting, her temperature had been very high, her appetite very poor and she had become very nervous, but as she became better the hysteric symptoms came upon her. I found the pupils dilated and rather sluggish; made drawings of each fundus while the physician looked over my shoulder. There was well marked inflammation of each optic nerve, which was serrated and extended far beyond its normal boundry; the vessels could only be seen in places, arteries thread-like, veins tortuous and sacculated in places; there was well marked effusion between the sheathes of the nerve. Is was as plain a case of basilar meningitis as ever was seen. She was put upon the iodides and tonics, became better, went home to her parents in Vermont, but, as I have since learned, died six months subsequently, from what disease I have not learned.

The two cases reported above were very similar in many particulars. From the colored drawings which accompany my records on my case book, one can scarcely see a particle of difference, and yet the causes which brought these conditions about were widely dissimilar. In the one, case No. 6, syphilis was the important factor, while in the other which took place in a refined delicate lady teacher, doubtless undue mental strain with loss of rest was the cause. The prognosis in case 6 was rather favorable, while in case 7 it was much more grave.

Case 8.—Anna F., aged twelve years, brought to me by her mother on April 17th, 1884, with a letter from her physician, had suffered with terrible headaches for six months, during which time she had vomited very hard every Sunday morning; two weeks before they consulted me she had convulsions, four during one night; was unconscious for one day, then became quite blind. In two days her sight became better but was followed by paralysis of the left side of the face, and ringing in both ears. My examination found pupils slightly dilated but responsive to light, eyeballs straight and movable in every direction, vision equalled $\frac{20}{100}$ right and $\frac{20}{70}$ left. The ophthalmoscope revealed well marked neuro-retinitis both eyes and choked discs, with effusion beneath the sheathes of the nerves. A letter was given to her physician who placed her upon the iodides, increasing doses. I saw her again in one month and found the fundus of each eye looking much better, vision also had improved to $\frac{20}{17}$ right and $\frac{20}{50}$ left eye. I learned afterward that she soon became worse, when they changed their physician for one who was both physician and specialist in the eye. She died September 30th, when her former physician tried to get consent to a post mortem examination, but, through the influence of the last physician called it was refused. It was evidently one of tumor of the brain, this had been my diagnosis, and as the prognosis was gloomy and imparted to the parents as such, probably it brought about a change of doctors.

Case 9.—D. W. B., aged 12, was also sent by her physician on account of her failing sight and double vision occasionally. Her health had not been good since an attack of typhoid fever nearly two years before. She had been subject also to an occasional epistaxis since she was four years old, but lately had complained of most atrocious headaches. My examination resulted as follows. Eyes equally well opened, movement of eyeballs complete in every direction except that they behaved as do eyes with an insufficiency of the internal recti, which on the use of prisms proved to be the case. Pupils natural and mobile, vision equals $\frac{20}{70}$ right and $\frac{20}{50}$ left, apparently emmetropic. With ophthalmoscope I found a double optic neuritis with slightly choked discs. I at once wrote to her physician that I feared we had brain tumor to deal with and had her put on the iodides as in the preceding case. She improved for a while but as she fancied that the medicine caused sickness to the stomach it was discontinued, but still she continued to vomit every morning about 4:00 o'clock for about three weeks after the medicine had been stopped. She then improved in appearance, increased in weight and her sight became better. Ophthalmoscopic examination showed that the optic discs had become flatter and less evidence of inflammation was manifest, indeed they looked almost natural. On April 5th, her mother informed me that she had a chill and sinking spell, with temporary loss of power in the right arm and side, this soon passed off but the vomiting again came on in the morning as did the headaches. Again did she improve and was taken on a visit to relatives in

Kentucky. Still she never felt quite well. "O mother," she would say, "I wish people would not ask me if my head hurts me? it always hurts, but not enough to keep me from reading or playing." I saw her but twice after April 6th, when I noticed a well marked prominence of the left eye ball, though not as much as is met with in the milder cases of Graves' disease. Her vision, however was much improved and the discs looked almost natural. Her subsequent history as given me by her mother after her death is, that she played and read as usual until six weeks before her last sicknes, when she had an attack resembling erysipelas, red puffed and shining skin, which her physician soon relieved with a lead lotion. She then became apparently better than ever. Had a ravenous appetite until May 1st when the vomiting and headache returned worse than before. She soon lost all use of herself and could not even be propped up in the bed. Her physician found her completely paralyzed, with the left eye much protruded and a purulent discharge from both. She sank very rapidly and died. I was invited to the post mortem which was made 20 hours after death. Her eyes then looked quite natural, with not the slightest protrusion of either. On removing the calvaria the membranes were very much congested as was the surface of the brain. About five ounces of serum escaped during the removal of the brain which was carefully sliced away. Nothing of note appeared until the cerebellun was reached, when we found the entire left lobe occupied by a tumor of much greater density than the brain substance. It was hardened and sent to Dr. H. Knapp of New York for a microscopic examination. Dr. J. E. Weeks, a very skilful microscopist, said of it: "It shows the structure of glio-sarcoma. The fatty changes in the interior of the tumor are quite extensive. There is also extensive round cell infiltration into the surrounding tissues."

Remarks: In the two cases just reported there is a remarkable coincidence. Both were young girls aged 12 years. Both had symptoms of meningitis as well as of brain tumor. One point of interest connected with these growths is that the patient often becomes much better, with greatly increased acuity of vision, and almost complete disappearance of inflammation of the optic nerve, so much, at times as to almost cause one to doubt the correctness of his diagnosis. Another point worthy of mention is that though one is confident that he has a tumor to deal with, yet to locate it during life is usually impossible. Who would have supposed that after a double optic neuritis with protrusion of the left eye that the tumor was as far back as the left lobe of the cerebellum? Again; the nature of the tumor cannot be arrived at during life, consequently we cannot be positive that death will certainly result, as there are many cases on record where every symptom of tumor was manifest, and yet under the use of the iodides they have disappeared. If my allotted time permitted I should add cases of inflammation and atophy of the nerve from Bright's disease, alcoholic and tobacco poisoning, and pigmentary degeneration, but the prognosis in these is by no means uncertain. In the first, Bright's disease, all of my patients have died in from one month to two years, except when the disease occured in the puerperal condition. Several of these have died, some have recovered perfect vision, and one remains entirely blind with white atrophy of the papillæ. In alcoholic and tobacco poisoning we may promise much, if the patient will abandon the poison before atrophy has set in, but if that has already commenced I have never seen the slightest improvement in vision follow. In pigmentary degeneration of the retina either in the congenital or acquired form, atrophy of the nerve accompanying it has never, so far as I have seen, improved in the least degree, but on the contrary has gradually become worse. From my observations in several hundreds of cases of inflammation and atrophy of the optic nerve during the last eighteen years, I have been led to the following conclusions:

First. Progressive atrophy with no evidences of former inflammation, rarely gives any clue to its etiology. In such cases the prognosis is, that vision rarely improves. If it occurs in but one eye which quickly becomes blind and after an interval of several months no sign of failure in the acuity of vision takes place, then the prognosis is favorable as to the second eye.

Second. In atrophies of the nerve following pernicious intermittent fever, though vision has been almost nil for years, it often improves very much when least expected.

Third. Inflammations of the optic nerve resulting from violent exercise, disturbances in menstruation, etc., occurring in plethoric persons admit of a very favorable prognosis.

Fourth. Atrophies occurring in very anæmic patients usually permanently impair or destroy vision.

Fifth. Where inflammation of the nerve is caused by meningitis and that is of syphilitic origin the prognosis is highly favorable; but when said meningitis is of other origin the prognosis is gloomy as to sight and life.

Sixth. Inflammations of the optic disc caused by brain tumors often change so in appearance, and such improvement takes place in the patient, owing to subsidence of meningeal inflammation, effusion and other modifying causes, that one is liable in some cases to doubt the correctness of his diagnosis or to modify his views as to the prognosis; but death is the result with few exceptions.

Seventh. Inflammation of the optic nerve and

retina occurring in the course of Bright's disease, means death in from one month to two years. I have seen many cases and none have survived the last mentioned period, except pregnant women; some of these have died. One (in whom premature labor was brought on) has perfect vision and one where it was not produced is stone blind.

Eighth. Atrophy of the optic nerve following long continued abuse of alcohol and tobacco combined calls for an unfavorable prognosis as regards vision. But where those poisons are given up before atrophy sets in, even though the sight is but $\frac{1}{200}$, perfect restoration of vision usually takes place, not by the "tapering off" method, but by the sudden discontinuance.

Ninth. Atrophy occurring during the process of retinitis pigmentosa, either congenital or acquired, offers nothing favorable as to prognosis.

INTERNAL EAR DEAFNESS, ILLUSTRATED.

Read in the Section of Laryngology and Otology, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY J. G. CARPENTER, M.D.,
STANFORD, KY.

The theme of labyrinthian deafness is one of very great interest, because it is so often incurable, and is generally secondary to, or the sequel of many affections; and to cure the disease, the ailment on which it depends must be cured, the pathological lesions removed, before irreparable structural changes have taken place in the inner ear. The premises will be made in this paper that internal ear disease is dependent more often on middle ear disease, and the latter, most frequently dependent on chronic nasopharyngeal catarrh, for the predisposing cause, and acute congestion or acute inflammation of the upper respiratory tract and aural apparatus, for the exciting cause; making due allowance, of course, for other etiological factors. Experience and observation teach the writer that doubtless chronic nasopharyngeal catarrh is present in the majority of such cases; is the most frequent of all other causes; and, if the previous history of these cases was ascertained before the labyrinthian deafness supervened, chronic catarrh of the nasopharyngeal passages would be found the starting point.

Mr. ——, age 35 years, previous health and family history good, came to be treated for slight deafness. Upon rhinoscopic and aural examination it was ascertained that he had chronic nasopharyngitis with catarrh of the Eustachian tubes and tympani; audition in right ear, $\frac{12}{40}$, left ear $\frac{24}{40}$; the membranæ tympanorum more or less opaque; the light spot diminishes in the right more than in the left. The turbinated processes and septum hypertrophied. Patient admits that the deafness supervened a year or two after the catarrh of the nasal chambers. The disease improved rapidly from the local use of warm, mild, soothing, astringent, non-irritant sprays, and inflation of the Eustachian tubes with warm air (using Rumbold's warm air inflator) daily for a week. The chronic catarrh improved rapidly, and the deafness was relieved. In a few days an acute catarrh of the upper air passages occurred and extended into the middle ear; the deafness also returned. The acute attack was soon checked, and local treatment continued, the Eustachian tubes being inflated daily for several days. But the hearing in the right ear instead of increasing as before got worse, and within two weeks from the acute attack deafness was complete. No aerial or bone conduction of the vibrations of the tuning fork could be discerned. Upon close interrogation, patient admitted that during a sojourn in the city, several weeks previous, he contracted what the physician called chancroid, but that it had healed. On examination by palpation and ocular inspection a chancre and a typical case of syphilis was diagnosticated. Patient was placed on anti-syphilitic treatment; in three weeks from the commencement of the latter, tuning fork could be heard; in six weeks the labyrinthian deafness was cured, and syphilis eventually eradicated. In addition to the congestion and effusion from the acute catarrh in the aural apparatus there was also a syphilitic exudation, no doubt, pressing on the auditory nerve suspending its functions temporarily, and which was relieved and cured by the anti-syphilitic treatment.

W. S. M., age 40 years, has good health, and an excellent family history. In the month of June had intermittent fever for which he took, of his own accord, fifty grains of quinine in twenty-four hours. He was sponged freely with cold water during the pyrexia, and after the subsidence of fever the bed was left during the night between two open windows; from the exposure to the draught an acute rhinopharyngitis, with acute otitis media, and internal ear deafness of right ear developed. Neither the tick of a watch, loud conversation, nor the tuning-fork could be heard. Bromide of potassium, gr. xxx, and the iodide, gr. v, were given three times a day for a week. The former, when given with quinine, prevents the tinnitus aurium, throbbing, and headache, if the latter, and was given to arrest congestion; the iodide was given to cause absorption of any effusion in the labyrinth. The external ear was syringed with water as hot as could be tolerated every half hour, or hour, to check pain and inflammation. The naso-pharyngeal chambers were sprayed with warm, soothing, mild, non-irritant, astringent medicines, with vaseline for the base; one or two drachms were

used at each treatment daily for five days. The third treatment was supplemented by inflation of the Eustachian tube with Rumbold's warm air inflator, as were the subsequent treatments. After the fifth day local treatment was given every other day for a week. By the seventh day the acute attack had subsided, and by the tenth day the internal ear deafness was cured. The potash mixture was discontinued and patient directed to avoid exposure and employ daily massage of the integument.

Did the fifty grains of quinine administered in twenty-four hours cause congestion and effusion in the labyrinth and internal ear deafness? or was it the acute inflammation of the nasal chambers extending by continuity of tissue from the Eustachian tube and middle ear to the inner ear? The writer believes that both were important factors directly concerned in the production of the labyrinthian deafness. First, because quinine is known to cause congestion and effusion within the membranous labyrinth; not only this, but it may congest the tympanic cavity and auditory canal, as is proven by the tinnitus aurium, headache, dizziness, and impairment of hearing, which follow large and repeated doses of quinine; the latter in large doses has been known to cause "severe otitis." Patients who have taken large doses at short intervals have often said to the writer: "Last evening I had neuralgia in my ear and I awoke in the night from a popping noise in my ear; I ascertained that there was a discharge from it, and as soon as the discharge began the pain left." On the auroscopic examination the drum-head would be found perforated and a serous, or serosanguinolent, otorrhœa present, and this otitis has occurred independently of any cold. Page 155, Roosa's "Treatise on Diseases of the Ear" gives a case illustrating quinine as the important factor in the production of "severe otitis." At page 504 he states; "I have been convinced by experience that it (quinine) has a peculiar power of congesting the auditory apparatus." But at page 157 in addition to proving that quinine caused the "severe otitis," he has not disproved that from time to time coincident with taking the large doses of quinine that there was not also a subacute rhino-pharyngitis ingrafted upon the chronic, extending by continuity of tissue to the auditory apparatus, and equally important, if not more important, than the quinine in causing the "severe otitis." At page 155 Dr. Roosa states the laryngeal inflammation was followed by chronic naso-pharyngeal catarrh. On this point the cart seems to have been placed before the horse, or the shadow has been taken for the object *per se*, for the laryngeal and aural affections had their origin in the naso-pharyngeal chambers, and the former were but the sequelæ of the latter, aggravated by acute or subacute inflammation. But at the time this case of Dr. Roosa's was published the millenium of rhinology had not come to pass. Now old things have passed away and we no longer see through a glass darkly; it is true that a bird's-eye view had been taken of the rhinal passages, but the primary, clinical, anatomical, neurological, and pathological, importance they now possess was not accorded them until within the last decade.

By treating locally the naso-pharyngeal chambers the labyrinthian deafness and middle ear complications subsided, *pari passu*, as the acute inflammation of the upper respiratory tract did, proving almost conclusively that the disease was originally in the naso-pharyngeal chambers. It can be easily seen how by extension of inflammation by continuity of tissue from the rhinal passages through the Eustachian tubes and tympana the labyrinths may become involved; either an effusion in the tympanum causing pressure inward of the inner tympanic walls, or membrane of fenestra ovalis and membrana tympani secundaria, and involve the auditory nerve in the vestibule and cochlea; or the congestion and effusion may be so great as to equally involve both the middle and inner ear and produce labyrinthian deafness.

Miss ——, age 23 years, health feeble, has never been strong and healthy since an attack of scarlet fever in childhood, and from this period she has had throat disease. Subjective examination presents the following: patient is anæmic, slightly dyspeptic, despondent, irritable, has more or less constant occipital or frontal headache, has ringing of bells in the ears, is weak and tottering, has cold hands and feet, blank, desponding expression, skin harsh and dry, has laryngeal irritation and discomfort, mouth breathing, great inclination to swallow, tongue coated white, sense of smell impaired, bad taste in the mouth, more or less hawking and expectoration, cries a great deal, is subject to neuralgia; is, in fact, quite neurasthenic. On rhinoscopic and auroscopic examination the accompanying described states were present, chronic, hypertrophic naso-pharyngeal catarrh; Eustachian and tympanic catarrh; the drum heads opaque, the left more than the right, the light spots diminished; audition of both ears was nil, neither the watch, loud conversation, nor the tuning fork could be heard; there was complete inner ear deafness. When the impaired hearing was confined to the middle ears the hearing would improve in dry, warm weather, and get worse in damp or wet weather. Patient is quite subject to colds, in fact is seldom free from one before another begins; really has the so-called catarrhal diathesis.

Constitutional treatment consisted of ferruginous and nerve tonics internally; inunctions of vaseline and massage externally daily, as the hot bath was ennervating and added to the discomfort and suffering of the patient. A cold

bath or a tepid one caused repeated attacks of subacute catarrh, or cold in the upper respiratory and aural passages; consequently vaseline inunctions and massage were really in demand and necessary to cleanse and stimulate the skin, and restore the latter and the circulation to their former natural state, and to fortify the body against future colds.

Local treatment consisted of warm, mild, soothing, astringent and non-irritant applications in the form of a spray, with vaseline, ℥j, for its base, combined with oil of eucalyptus, gtts. v, Kennedy's pinus canadensis, gtts. xv and carbolic acid, grs. ij, made into a mass, and one or two drachms of this sprayed into the naso-pharyngeal passages, preceded when necessary by the cleansing lotion of Dobell, or listerine and glycerine each ℥j, dose one teaspoonful with one of chloride of sodium in a pint of water, and sprayed warm; (for twenty days.) Fifteen days after the commencement of treatment, when the inflammation was greatly reduced, as were also the swelling and infiltration, the Eustachian tubes and middle ears were inflated with Rumbold's warm air inflator, charged with distilled water Oss. tr, iodine, ℥j, daily, after the cleansing mixture and vaseline compound had been used. This treatment was used for inflation because the air in the Eustachian tubes and tympana is believed to be in a rarefied state normally. Second, because from the congestion and infiltration of their lining, warm rarefied air is much more likely to permeate the Eustachian tubes than cold air from Politzer's method, the Eustachian catheter, or from Pomeroy's faucial catheter. Third, neither inflation nor catheterization of the Eustachian tubes should be resorted to until the congestion and chronic *inflammation of the naso-pharyngeal chambers is reduced to a minimum, and foreign bodies or occlusion have been removed.* By thus checking the inflammatory process in the upper air passages the ear affections consequent upon it are arrested and cured much more easily, and return to their nornal state and function *pari passu* with the former. After the twentieth treatment locally of the chronic rhino-pharyngitis, and fifth inflation, the tuning fork was heard by bone conduction in the right ear, and after the twenty-fifth treatment and tenth inflation, in the left ear. After the thirtieth treatment hearing returned strong enough for the patient to hear the hammering noise of the carpenters on the building adjacent to the office, and to hear the town clock strike, which was about thirty yards away. From this time the treatment was continued every other day for two weeks, when Miss —— could hear the aerial vibrations of the tuning fork, the watch eighteen inches away in right and six inches in left ear, and hear spoken and whispered conversation. And while the chronic naso-pharyngeal catarrh was not cured entirely, the accompanying symptoms had been relieved, life has been made more pleasant and comfortable, but to permanently cure the former the patient should take some treatment during the fall or spring, or both, to prevent an aggravation of the disease and effect a permanent cure. The physician places the upper respiratory tract in the most favorable condition aseptically and antiseptically for recovery, and through this *vis-medicatrix naturæ* the disease is cured by the mucous and submucous tissues becoming regenerated or growing into former natural state.

Patient was satisfied with results, both anæmia and neurasthenia having subsided. This case, in truth, was an extreme one, and shows conclusively what can be successfully done for suffering humanity. When the premises are right, and one goes right, one is sure to end right.

The cause of the internal ear deafness was primarily in the naso-pharyngeal chambers, viz., chronic naso-pharyngeal catarrh, and it having continuously and slowly invaded the Eustachian tubes and middle ears, producing middle ear deafness; and, having caused chronic irritation or congestion of the labyrinth, it was very easy on the supervention of an acute inflammation of the upper air passages and auditory apparatus to have tympanic and labyrinthian deafness. The latter, either from traction on the ossicula audita by effusion, on the auditory nerve, or from congestion and effusion of the labyrinth.

Rhinologically considered, in the future not only will there be more tympanic disease and deafness cured, but also, labyrinthian disease and deafness; and the writer is convinced from the successful issue in these and other cases observed that the "royal road" to the successful treatment of middle and internal ear disease is in the majority of cases in and through the naso-pharyngeal passages, and before serious structural lesions have taken place in the former.

It is very easy to account for the diverse affections following catarrhal inflammation of the upper air passages, when the physiological, anatomical, lymphatic, neurological and clinical relations of the parts are considered. The meninges and base of the brain are in close proximity to the catarrhal mucous membrane and many blood vessels that the latter supply also supply the former either directly or indirectly. The same is true in regard to the distribution of the cranial nerves. They communicate with various ganglia and proximate and remote organs, and convey irritations directly or reflexly to different parts of the body. With what facility then, when pain, irritation, or inflammation is produced in the terminal filaments of a nerve supplying the mucous membrane of the upper air passages can it be transmitted to distant organs or membranes. It is equally easy to have an irritation or congestions of the brain follow chronic catarrhal in-

flammation of the upper air passages, as tympanic or labyrinthian deafness or laryngitis.

Physiologically the nose warms the respired air, frees it from foreign material before passing into the lungs, protects the air passages, and through the sense of smell warns its possessor of the presence of pleasant or irritating gases, or noxious substances, and its lining is the first part of the respiratory tract to become irritated and chronically congested, or inflamed, and extending by continuity of tissue to the pharynx, tonsils, larynx, trachea, eye, frontal, ethmoidal and sphenoidal sinuses, and to the antrum, Eustachian tubes, and aural apparatus.

THE CLINIC.

CLINICAL LECTURE DELIVERED NOVEMBER 13, 1889, AT THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

BY W. GOODELL, M.D.,
PROFESSOR OF GYNECOLOGY.

[Reported for THE JOURNAL.]

ABDOMINAL TUMOR, WITH ADHESIONS.

Gentlemen: I must do a little gold beating to-day. By this I mean, that as a small piece of gold is beaten out into a large leaf, so I shall have to spin out what I have to say to-day out of a very small text. I have comparatively little material to bring before you and no operations to fill up the hour. To begin our gold beating:—Day before yesterday, I received from a physician a note, telling me that there was in a small alley in the suburbs of this city, a very poor woman with a uterine tumor, and asking me to get her into the hospital. Therefore, yesterday the ambulance was sent for her and she was brought into the female ward. This morning I bring her before you without having seen her, in order that you may learn how to make a diagnosis.

She has a large and solid tumor in the right side of the abdomen, which extends very nearly to the liver, and is almost immovable by adhesions. This you can plainly see as I expose her abdomen. She says that she is fifty-six years old and the mother of thirteen children, that her monthlies ceased one year ago, that this tumor has existed for several years, and that it has been getting larger and larger since her menopause. She suffers a great deal of pain from this tumor, and has now a frequent pulse and high temperature. Her tongue is dry and red, and she has the hebetude and dulness of sense, due clearly to blood poisoning, probably from the presence of pus somewhere.

I see upon her abdomen what I at first took to be the scar of a burn; but she tells me they came from a child-bearing and now, upon observing them more closely, I find that she is right. They are lineæ albicantes, old ones stretched open from previous pregnancies and, therefore, white and glistening; not purple, as they would be, if they were of recent origin.

The tumor presents the feature of a fibroid of the womb, but constant pain is rarely associated with such a growth, when it lies above the pelvis, then again septic symptoms should not be present. It is clearly not a cyst, for it is too hard and nodulous. Can it be a malignant growth? a sarcoma or a carcinoma? The latter could not have lasted so long as six years, nor could a sarcoma, unless the growth were first benign, and had later taken on malignant degeneration. Again, a uterine fibroid tumor has but few vascular attachments and requires but little blood for its sustenance. Therefore, very rarely, if ever, does it become converted into a malignant growth, which needs a large supply of blood for development. For this reason, we find cancers flourishing in the more vascular tissues, such as the cervix uteri, the breasts, the lips and the stomach.

But before I exclude cancer or sarcomatous tumor, it is right for me to examine her womb. I find that this organ is movable and healthy, and that the tumor has apparently no connection with it. You see that the sound gives a measurement of only three inches, and the motion communicated to the tumor does not agitate the sound. Yet it might possibly be a pedunculated fibroid of the womb, with high parietal attachments. Why then, does it not grow smaller after the menopause? As a broad rule with, however, some exceptions, uterine tumors that grow larger or make their first appearance after the menopause are usually malignant.

I must confess that I am puzzled, so let me go over her history again: She says that this tumor began in the right side, high up and, in fact, it encroaches upon the liver. Now here is a special point that I wish you to remember. If this were a growth from the liver, I should not have this narrow ribbon of resonance between the tumor and liver, hence it is not hepatic. But the growth dips down on the right side toward the kidney and extends horizontally across to the abdomen. Yet her micturition is not frequent. Her urine has been examined with negative results, and she persists in saying that she has had this tumor for six years. (The patient was now removed.)

I confess, gentlemen, that I am perplexed in making a diagnosis. I can not but think that we have here a malignant growth, either a sarcoma of the omentum or a malignant tumor of the right kidney. The pain, the increase in size since the menopause, the septic symptoms, the nodulous character of the tumor, the age of the

woman, all point to malignancy. In view of this doubt in my mind I shall get this woman to stay here in the hospital for some time, both that I may watch her symptoms and otherwise study her condition, and also that she may have the proper food and be built up; for she is now in too weak a condition to undergo an operation. After she has improved I shall make an exploratory incision into the abdomen and be governed by what I shall find.

After all then, gentlemen, instead of teaching you how to make a diagnosis, I have taught you, what perhaps is as important, how not to make a diagnosis. It is very humiliating for a specialist on abdominal tumors to confess that he is puzzled to make a diagnosis in this or any other case: But, gentlemen, you will find out when you get to be as old as I am, how little you actually do know. Often, time will throw light on an obscure case. Then an exploration incision will throw more. But even this will sometimes fail, for last week I removed before you a very large pelvic tumor, the nature of which I do not know. Both ovaries and tubes were healthy and left behind, yet there was a pedunculated tumor coming off from the broad ligament. I sent it to Dr. Formad, but have not yet got a report from him.

FIBROID TUMOR WITH ADHESIONS.

This is an interesting case which Dr. Taylor and I treated in conjunction. She has multiple fibroid of the womb, which has universal attachments to the pelvic peritoneum. She was brought into the hospital very ill indeed and with all the symptoms of septicæmia, showing the presence of pus somewhere. But we could not discover where it lay. I aided Dr. Taylor in the operation. After cutting down in the median line of the abdomen, he found a womb gnarled with multiple fibroids and with adhesions to all the pelvic organs and tissues so intimate and so numerous, that no topographical outlines could be made out. There were no ovaries, no tubes and no bladder to be recognized. Enlarging the incision, Dr. Taylor discovered behind the tumor and adherent to its whole surface a pus sac. This was accordingly aspirated and found to be full of stinking pus. It was probably an ovary, but so closely adherent to the tumor that it seemed to be growing from it, and there was no possibility of removing it. After washing out the abdomen and especially the sac, the opening of the latter was stitched to the abdominal incision and a glass drainage tube was inserted. The object of the tube was to keep the sac empty, and to make its walls collapse. Just as we put drainage tubes into any kind of abscess, and compress its walls together by bandages, so we put in a drainage-tube into the pus sac, and compressed its walls together by a large pad of cotton and an abdominal binder. The sac was then washed out once a day with carbolized water.

At the end of a week we changed the glass to a rubber tube, which being elastic is not so dangerous. She has done extremely well and the tube has gradually been pushed out by the closure of the abscess, until it goes in only three inches, and in two more weeks she will be ready to go home. These abdominal pus sacs should, when it is possible, be always removed. Yet when they can not be enucleated, it is wonderful how quickly they sometimes will heal up when drainage is employed. They heal up far more quickly than ovarian cysts which can not from adhesions be removed, and which are then treated by drainage.

THE TREATMENT OF FIBROID TUMORS BY ELECTRICITY.

There has been a good deal written and said of late in favor of and against the treatment of fibroid tumors by electricity. The extreme positions assumed by the opposing parties have reminded me of the two knights of ancient fable who, after a sore battle to decide whether the statue before them was of gold or silver, fell grievously wounded each one on that side of the statue which his antagonist had first occupied. They then found to their cost, that each one was right and each one was wrong, for the statue had a golden side and a silver side. Each one held a half-truth, between them they held the whole truth. So when I hear one gentleman advocating nothing but the knife for fibroid tumors, and another as earnest in pushing the claims of electricity, I say to myself, each gentleman holds a half truth, but unitedly they hold the whole truth.

There is no doubt that electricity will sometimes stop the hæmorrhage, and this is in itself a great gain; but whether the tumor will ever become smaller or disappear is yet an open question. The advocates of the knife, with much truth contend, that, granting the hæmorrhage is stopped, the ovaries are themselves greatly diseased in cases of uterine fibroid, and no amount of electricity can cure them. This is a strong argument and it has very frequently been verified by me, when removing the ovaries for fibroid tumors. For instance, only three days ago I removed, at my private hospital, the ovaries of a lady on account of a bleeding and painful fibroid tumor of the womb. Each ovary was found to have undergone fibroid degeneration. Usually, in cases of uterine fibroid, the ovaries are either much diseased or they contain pus-cavities. Sometimes, however, the ovaries are perfectly healthy, no matter how large the tumor may be; but these are exceptional cases. On the other hand, at the change-of-life fibroid tumors generally cease to grow, unless they undergo cystic degeneration. In other words, the woman either ceases to suffer, or she recovers her health after the menopause

has become established. Now, if a woman with a bleeding fibroid can by the means of electricity be tided over to the menopause, a very great point has been gained. But how are we to know when a uterine tumor is benign and amenable to electrical treatment? I can answer this question better by telling you when they are malignant. When uterine tumors appear in woman after the change of life they are usually malignant. If the uterine tumor appears before the change-of-life and, after the change-of-life, keeps on growing, it is generally malignant, unless it happens to be a fibro-cyst. As a broad rule, with the exception of ovarian cysts, all abdominal tumors that appear after the change-of-life, are usually malignant, unless they are of malarial origin.

The subject of the treatment of bleeding and of growing uterine fibroids by means of electricity is the burning question of the day. I am yet on the fence, although I know that in one case, electricity for the time being checked a very bad case of hæmorrhage; in fact it saved my patient from what Homer calls "The purple death." My advice to you is that, if you can not stop the bleeding by the systemic use of quinine, sulphuric and gallic acids, digitalis, ergot or turpentine; or by the internal applications of vinegar, iodine, nitrate of silver, tannic acid or Monsel's solution, you may send the case to a competent electrician.

I put Monsel's solution last, because it is liable to form a firm and hard clot, which stays behind in the womb and undergoes dangerous decomposition. I have nearly discarded it from my gynecological practice, except in rare cases of capillary oozing on the surface of the abdominal walls of the bowels after ovariotomy, and only in those cases in which Paquelin's cautery is ineffectual or it is inadmissible. But you must not suppose that electricity is altogether a harmless remedy. Repeated cases of death have been reported, and I must honestly confess that I am surprised that more have not occurred, considering the heroic dosage of electricity that is resorted to.

MEDICAL PROGRESS.

THE COLD BATH IN TYPHOID FEVER.—M. JOSIAS reports his experience in the systematic use of the cold bath in the treatment of typhoid fever. During the years 1888 and 1889 he has treated in various hospitals 36 cases by this method, giving the bath at 18° every three hours when the bodily temperature reached or exceeded 39°. One patient died, the mortality therefore being 2.77 per cent. Regarding sex 29 patients were males and 7 females. The cases treated may be divided as follows: Benign, regular and hyperpyretic, 27; grave, with or without complications, 9; relapses, in spite of the cold bath, 4; relapses, treated by the cold bath when the cases had previously been treated by another method.

These 36 patients took 2,227 baths at 18°, an average number of 61 for each patient. The baths were always begun as soon as the diagnosis of typhoid fever was definitely determined, and they were never suspended except temporarily in cases of intestinal hæmorrhage. Menstruation, symptoms of broncho-pneumonia and albuminuria were not regarded as contraindications for the treatment. There was no occasion to regret perseverance in the treatment. Thanks to the baths, the fever exhibited nothing of a typhoid character save the name. Patients treated in this manner are not prostrated; they present no torpor; they remain conscious and lucid; the tongue is moist and thirst is intense, a condition that enables one to administer 4 or 5 litres of alimentary or other fluids daily. There is diarrhœa and excessive polyuria, but these discharges are to be regarded as a means of carrying off the excessive waste of the organism and as consequently of real advantage, the more so because this washing out is effected by the aid of bouillon and milk, whereby the patient secures the advantage of superalimentation the effects of which are easily controlled. The patients above referred to did not lose much in weight and only moderately in strength, losing from 1 to 2 kilo. in eight days, and being able without much effort to get in and out of the bath. The analysis of these 36 cases shows that refrigerating treatment more than any other seems to successfully combat the fever and adynamia and place the patient in the best condition of resistance to the disease. These statistics united to those of MM. Juhel-Renoy and Richard make a total of 130 cases of typhoid fever with 6 deaths, *i. e.*, a mortality of 4.61 per cent.; whereas the general mortality from typhoid fever in the hospitals of Paris is from 14 to 15 per cent.—*La Sem. Méd.*

ABSENCE OF VAGINA.—M. PICQUÉ, of Paris, reports the case of a young woman who presented a total absence of the vagina and an infantile uterus. The vulva was normal. There was an absence of all signs of menstruation, although the ovaries were normal; this was probably due to the malformation or absence of the uterine mucous membrane. Following the suggestions of Dolbeau and Le Fort the operator attempted to remedy the principal defect. Amussat's procedure was adopted. A fibrous cord was found which served as a surgical guide but constituted an actual obstruction to the operation itself. The mucous membrane of the vestibule was made to slide back upon the posterior wall of the new vagina, while the integument of the perineum was made to cover the anterior wall. The reporter believes that this manœuvre is useful as a means of pre-

venting subsequent retraction. The results of the operation remain satisfactory five months after the operation.—*Le Bulletin Médical.*

EARLY OPERATIVE TREATMENT OF PERITYPHLITIS FROM PERFORATION OF THE APPENDIX VERMIFORMIS.—CHAS. KRAFFT, of Lausanne, seeks to show that the treatment of perityphlitis must be of an operative character. In perityphlitis stercoralis there is perforation of the appendix by a fæcal calculus, with the formation of a retrocæcal abscess containing fæcal matter. The abscess should be freely opened, the calculus removed, and the appendix ligated and cut off. The symptoms of perityphlitis are suddenly lancinating and pulsating pains, which are soon localized in the region of the cæcum. The patient, generally a young, powerful man, has bent with diarrhœa and constipation. Palpation early in the case reveals resistance in the right iliac fossa, sometimes dulness. If the diagnosis is certain, one can never operate too soon, though he may often do the contrary. Operation: Typical incision, as for ligation of the right common iliac; after cutting through the abdominal walls either fluctuation is made out, or else one makes an exploratory puncture, in order to locate the abscess; this is freely opened, generally extraperitoneal; the calculus is sought, and the appendix ligated and removed; suture of peritoneum, if the latter has been incised; drainage irrigation daily until the wound has united.—*Volkmann's Kil. Vortr.*

CURE OF CHOREA BY ELECTRICITY.—GAUTIER reports a very severe case of generalized chorea in a patient 13½ years old. The patient could not stand erect, nor even sit up straight; neither could he use his hands to dress or feed himself; he could not talk; there was incontinence of urine. From the 16th of July to the 14th of September twenty-six applications of the electrical current were made; duration of each, eight minutes; intensity, first six, then eight, and finally twelve milliampères; direction of current, from the sacrum to the neck. Results: The patient, who at first could not write, became able to do so with neatness and rapidity; the bodily weight increased from 32 to 40 kilo.; he is able to work, and is no longer excitable. The treatment employed before resorting to electricity consisted in the administration of bromide of potassium, sulphur baths, chloral and antipyrin.—*Le Bul. Méd.*

POSITION OF PATIENT DURING THE LYING-IN PERIOD.—DR. CULLINGWORTH, in his address on obstetrics before the recent meeting of the Bristol Medical Association, expressed his doubts regarding the wisdom of requiring patients to maintain the horizontal position after parturition. He also took occasion to quote from the writings of Chas. White, who, more than one hundred years ago, advised that lying-in women should be required to sit upright in bed while nursing their children and while eating, and to kneel while passing water. He gave as his reasons for this advice the prevention of stagnation of the lochia, the avoidance of constipation and retention of urine, and the promotion of uterine contraction.—*Brit. Med. Journal.*

TOTAL EXTIRPATION OF LARYNX.—PROF. DEMONS, of Bordeaux, exhibited a patient at the meeting of the French Surgical Congress, upon whom he had performed total extirpation of the larynx, thirty months previously, on account of an epithelioma limited to the right vocal cord. The patient, who is now 58 years old, is in perfect health. He wears no artificial apparatus, and still, thanks to certain movements of the lips and tongue, he is able to speak in a very intelligible manner, though in a very low voice.—*Le Bulletin Médical.*

A CASE OF POISONING FROM ANTIPYRIN.—PANSCHINGER reports (*Centbl. für Gyn.*) a case of poisoning by antipyrin in which a new symptom was observed, viz: profuse diarrhœa, which set in a few hours after the last dose was taken. In all 5 grams were taken, 1 gram every hour. Aside from the diarrhœa, the principal symptom was the usual collapse. The patient recovered in ten days. The medicine was obtained from an apothecary, and without a prescription.

SUBCUTANEOUS INJECTION OF BLOOD BY THE ZIEMSSEN METHOD.—WESTPHALEN reports (*St. Petersburger Med. Wochenschr.*) a case of so-called essential anæmia which occurred suddenly in a man 56 years of age, after an attack of intestinal catarrh with fever. A bothriocephalus latus was discharged and the patient was treated with liq. ferri dialysæ, but no improvement took place in his condition. An examination of the blood showed a notable decrease in the number of red blood corpuscles present (840,000 per cubic millimetre). A subcutaneous injection of 150 ccm. of defibrinated human blood was then administered, and within eight days marked improvement was observed in the patient's condition, which continued until final recovery.

CHOLELITHIASIS.—M. ROSENBERG reports (*La Sem. Méd.*) excellent results in cholelithiasis from the administration of large doses of olive oil. Of late he has added menthol to the oil on account of its anæsthetic properties, which serve to lessen the inclination to vomit; cognac is also added to improve the flavor. The reporter has collected the reports of twenty-one cases of this disease, nineteen of which were successfully treated by this method. The explanation of the method of cure is this, that the ingestion of large amounts of oils and fats increases the secretion of bile, and hence favors the expulsion of the calculi.

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LONDON OFFICE, 57 AND 59 LUDGATE HILL.

SATURDAY, DECEMBER 28, 1889.

INTESTINAL SUPERDIGESTION.

An article with this title appears in the *New York Medical Journal* of Nov. 9, from the pen of DR. W. S. CHRISTOPHER, of Cincinnati. The term is used to designate the pathological fermentation of the products of normal intestinal digestion. The author's deductions are based upon well established chemical laws, and, if true, go far toward the explanation of a train of phenomena concerning which our knowledge has been very incomplete.

Christopher's aim is to elucidate the pathology of the intestinal fermentations. He objects to the prevalent idea that fermentation is opposed to digestion; or, in other words, that a food may be either digested or undergo fermentation, but cannot be both digested and fermented. On the contrary he believes that the action of the digestive ferments is usually, if not always, a prerequisite to the action of the microörganisms of pathological fermentation. The process is thus brought into analogy with the alcoholic fermentation of cane-sugar; for it is a well known fact that the latter process cannot occur until the sugar has been inverted; that is, transformed into the two glucoses, dextrose and levulose, by a soluble ferment accompanying the yeast plant and probably produced by it. Superdigestion is always induced by microörganisms, and varies in its results according to the food upon which these develop.

We have therefore superdigestion of proteids, of fats, and of carbohydrates; and each of these forms is discussed in the paper.

Concerning the superdigestion of proteids, the author tells us that it may also occur in the stomach, but is there less frequent than in the intestine. In the products of tryptic digestion it is exceedingly common. This difference he believes is due less to any doubtful antiseptic action on the part of the gastric juice than to the difference in extent of the digestion or decomposition of the albuminoid molecule produced by the two juices. "The most interesting of the decomposition products of proteids, for our present purpose, are the fatty acids, the ptomaines, and the gases, which latter comprise carbonic acid gas, ammonia, nitrogen, hydrogen, marsh gas, and sulphuretted hydrogen." The ptomaines, the most important of these products are alkaloids, and produce their effect through the agency of the central nervous system. A frequent group of symptoms produced by this putrefaction "comprises constipation, headache, drowsiness, and listlessness, or even marked depression—the so-called biliousness." The author has also seen a group of symptoms comprising "constipation, coma, contracted pupils, slow and shallow respiration, and a depressed heart-action."

But he considers the superdigestion of the carbohydrates the most important as well as the most frequent form of intestinal fermentation in adults. Normal digestion converts all the carbohydrates, starch, cane-sugar, maltose, lactose, into glucoses. Subsequent fermentation may convert the glucose into alcohol with liberation of carbonic acid gas; or into one of several fatty acids, which in turn breaking up give rise to carbonic acid gas, and hydrogen or marsh gas. The clinical features and the treatment of this form of fermentation were presented in the report of two cases in which the trouble had been diagnosticated and successfully treated. The most prominent symptoms were constipation, tympanites, and abdominal pain. The chief feature of the treatment was the withholding of those articles of diet (carbohydrates) in the products of whose digestion the abnormal fermentation was believed to have occurred. However, since total abstinence from the carbohydrates for any length of time is next to impossible, (and this implies the exclusion of milk on account of its contained sugar,) the author recommends the allowance of

a small amount of farinaceous food and the administration therewith of an active diastatic ferment by means of which the starch may be digested in the stomach.

We doubt not that Dr. Christopher has given us a true explanation of a certain number of cases of intestinal fermentation; in other words, that he has described a possibility. We regret, however, that he has not given us some data in support of his assertion that this is the most frequent form of intestinal fermentation beyond the fact such is his individual belief. The frequency with which we encounter in these cases gross errors in diet with the passage of undigested food, especially in children, is sufficient evidence that fermentation may occur in food that has wholly or in part escaped the action of the digestive juices. And although the paper is expressly limited to intestinal fermentations it seems that stomachic fermentations should have been discussed so far at least as to point out the means of distinguishing them from processes occurring in the bowels.

We trust that the author will yet more fully elaborate his theory with especial reference to the relative frequency of superdigestion and its differential diagnosis.

CONCLUSION OF VOLUME XIII.

For thirty-four years it had been the custom of the American Medical Association to publish, each year, a single volume containing the Proceedings of the Annual Meeting for that year and such papers as were referred for publication.

As time went on and the Association work was more extended these Transactions became more and more voluminous. The work of editorial supervision came to be a serious one, and the necessary delay incident to publication led to an extended discussion of methods, until finally it was determined that instead of issuing the Transactions in single annual volumes, a weekly medical journal should be substituted, in which during each year the entire proceedings of the Association for that year and the papers read in the several Sections should be published, and in order that THE JOURNAL might be still more valuable to the members, it was decided to provide for the publication in its columns of such other original and selected matter as would justly entitle it to a prominent place among the leading medical periodicals of the day.

It was not without solicitude that the Trustees charged with the responsibility of conducting this enterprise assumed the duties thus assigned to them. They were fortunate in securing such editorial and financial ability combined in the person of an Editor-in-chief that from the first THE JOURNAL was able to command for itself the confidence of the profession and to attain a sound financial basis. After five and a half years of untiring labor the Editor desired to be relieved of the responsibilities of his position, and at his earnest solicitation his resignation was accepted. It was then decided to continue the publication of THE JOURNAL under the direction of the Board of Trustees, and that its immediate supervision should be vested in a special Board of Management. Under that supervision the volume closing with the present number has been edited and published.

The same careful oversight as in former years has been exercised with reference to the finances of THE JOURNAL. Its receipts at the office of publication during this as compared with the previous year have been somewhat increased, while the expenses of publication have been diminished. If the payments of annual dues by the members shall be as prompt as in former years, we see no reason why in the future THE JOURNAL may not only continue free from debt, but material additions be made which would enhance its value to members and subscribers.

It is the sincere desire of THE JOURNAL to reflect fully and impartially the interests and the wishes of the Association, and to labor for its upbuilding in every legitimate way. It desires to be in full accord with every honorable effort for the educational improvement of the medical profession of our country, and for the *unification* of all medical interests. It seeks the hearty support of the entire membership of the Association, and will earnestly unite in the effort to extend that membership until the Association shall have a strong and influential representation in every State in the Union. It is grateful for the courtesies so freely accorded by other medical journals, and in seeking to develop its own interests, will be as studiously careful in no wise to imperil theirs.

At the close of another volume, THE JOURNAL craves for each member of the Association only pleasant memories of the old year, and tenders its greetings for the *New*.

EDITORIAL NOTES.

HOME.

THE LIBRARY OF THE LATE DR. BAUER, the celebrated German scholar of Leipsic, has just been purchased by the Haverford, Pa., College for a large price. It consists of 8,000 volumes on ecclesiastical literature and history,

THE UNIVERSITY OF CINCINNATI contemplates the establishment of a Medical Department. The aim is to so richly endow it as to make it rival if not eclipse the existing institutions of this region. The project is as yet chimerical, however, the source from which the phenomenal endowment shall come not having been ascertained. There is at present a nominal connection between the University and nearly all the other educational institutions of the city, by which the two leading medical colleges, the Ohio, and the Miami are designated as the Medical Department of the University of Cincinnati, and this is about as close as the relation is likely to become, notwithstanding the fact that a correspondent of an eastern medical journal, probably in a facetious moment, hints at the possible collapse of the now prosperous medical colleges, should the University prove successful in its project. Certainly the old institutions, particularly the Medical College of Ohio, established in 1819, will not voluntarily close their eventful histories and begin anew in 1890.

DEATH UNDER ETHER.—At Bellevue Hospital a death under ether, used as an anæsthetic, recently took place, during an operation for abscess in the neck. At the autopsy, the kidneys were found to be diseased, through cystic degeneration.

DR. J. J. KANE, for a number of years a surgeon in the United States Army, has recently been appointed one of the attending surgeons to St. Mary's Hospital, Cincinnati.

MEDICAL DIRECTOR J. S. BILLINGS.—Dr. John S. Billings has been invited to take the position of Medical Director of the University Hospital at Philadelphia. The Secretary of War, and the Surgeon-General of the Army, have signified their approval and Dr. Billings will assume this new function, without change of official duties in the Surgeon-General's office.

THE LIFE-SAVING SERVICE.—The annual report of the Life-Saving Service of the United States Government, for the last fiscal year, shows that the number of persons involved in the operations of the department was over three thousand, the number of persons saved or succored, 787, number of those lost, 42. The cost of maintenance last year was $293,000.

A NEW CHARITABLE INSTITUTION, known as Christ's Hospital, has recently been established in the West End, Cincinnati. It is conducted by a corps of qualified physicians under the auspices of the Methodist Episcopal Church.

FOREIGN.

A FEVER-HOSPITAL DESTROYED BY FIRE.—At Rochester, England, the Fever-Hospital was destroyed by fire, November 29. There were fifteen patients there at the time, and all were rescued by the nurses, although with no little difficulty and risk.

DISINFECTION OF BARBERS' INSTRUMENTS.—Several cases of transmission of contagious diseases by barbers' instruments having come to light at Nordhausen, the police of that city has passed an ordinance enjoining all barbers, under penalty of the law, to disinfect their instruments by immersion in a solution of carbolic acid or creolin after being used.

CRUSADE AGAINST ALCOHOLISM.—The Government of Belgium has decided to combat, as far as possible, the progress of alcoholism. After demanding and obtaining from Parliament a law permitting the exaction of a license fee for new public houses of a greater or less amount, according to the population of the locality, it has also raised the subsidy which it grants to the Patriotic League Against Alcoholism from 500 to 1,000 francs.

MEDICAL STUDENTS IN THE EUROPEAN UNIVERSITIES.—A recently published University calendar shows the following attendance of medical students during the summer semester of 1889: Vienna, 2,064; Munich, 1,462; Berlin, 1,186; Würzburg, 983; Dorpat, 931; Leipzig, 874; Graz, 586; Krakau, 522; Freiburg, 452; Greifswald, 422; Bonn, 402; Breslau, 380; Halle, 337; Kiel, 316; Erlangen, 301; Strassburg, 300; Heidelberg, 297; Zürich, 288; Innsbruck, 285; Königsberg, 266; Tübingen, 265; Bern, 251; Marburg, 236; Göttingen, 227; Jena, 226; Giessen, 173; Rostock, 155; Basel, 109.

TOPICS OF THE WEEK.

BANTOCK'S VIEWS OF LISTERISM.

As an appendix to a paper on "Hyperpyrexia after Listerian Ovariotomy," read before the Royal Medical and Chirurgical Society in December, 1880, DR. BANTOCK published a table of 162 cases of completed ovariotomy. In the November number of the *British Gynecological Journal* of this year he publishes a table including remarks on 238 additional cases, bringing his total list to 400. It is extremely interesting to survey the results and the methods of this eminent surgeon, who says that in 1881 there were only two men, as far as he knows, who ventured to perform ovariotomy without a rigid observance of all the details of the Listerian method. These two men were Mr. Lawson Tait and himself. In speaking of the present state of the Listerian method he says in England, at least, it is a very rare thing to see the spray in use at all. In the Samaritan Free Hospital it has been discarded by all of his colleagues with but one exception. And he adds it is making no assumption when he says that this is due to the superior results which he has obtained there since he resorted to a more rational and more simple method. Still, he adds, the belief in so-called antiseptics has a firm hold on many minds, and although the belief in the efficacy of the spray has wellnigh died out, it is not so with other details of the method. For whether it be carbolic acid, or corrosive sublimate, or boracic acid, or whatever it may be, few operators venture to perform an operation without employing one of these agents for the hands, sponges and instruments.

As a proof that he is making no assumption when he says that his results led to the discarding of the spray in the Samaritan Hospital he gives the following results: He confines himself to the cases of ovariotomy, and records it as a fact that from April, 1885, to October, 1888, a period of three years and a half, he did not lose a case in that hospital with a series of ninety cases. While on the other hand, during this period the mortality under the Listerian method exceeded 12 per cent. Moreover, he affirms that his patients recovered with less pyrexia than under the carbolic acid treatment. As an excuse for recurring to this question once more—he hopes for the last time—he gives the fact that he is constantly learning that there still exists a belief that he employs some form of so-called antiseptic in his operations. Once for all, then, he wishes to repudiate, and in strong and unmistakable language he does so.

For his hands, instruments and sponges, he uses plain water; he takes no precaution to sterilize it, "as it is called," by boiling; he regards water that is fit for drinking and household purposes generally as suitable for the purpose of any operation; that while the water is heated —but not necessarily boiled—he has no hesitation in cooling it down, if too hot for his hands, with cold water drawn fresh from the tap; as, for instance, when washing out the peritoneum, and that he pays the greatest attention to cleanliness and sees that all utensils are as clean as water can make them. He washes his hands very carefully before commencing an operation, making them as clean as soap and water and a nail-brush can make them, and he frequently cleanses them during the operation. He goes so far as to use the nail blade of his pocket knife for removing all matter from under his nails after washing, without adopting "that refinement of absurdity" which consists in previously passing the blade through the flame of a spirit lamp. As a covering to the wound he employs simple absorbent gauze, perfectly innocent of any germicide or foreign substance. And such is his belief in the hurtfulness of "germs" that, were it not for other considerations, he would leave all his wounds exposed to the air—as, for example, he has sometimes done in amputation of the breast, and always in the operation for restoring a ruptured perineum.

What, then, he says, are the results of this method, speaking generally? They are these, viz.: that while in his first hundred ovariotomies, the majority having been done under the Listerian method or a modification of it, he lost nineteen cases, in his second hundred, while he was gradually abandoning this method, the mortality fell to fourteen; in the third hundred, all performed with plain water, the mortality was eight, and in the fourth hundred it was only four.

In the general management of an ovariotomy, in several particulars his practice differs materially from that of nine years ago.

1. *Washing out the Peritoneum.*—The writer gives a very interesting history of how he gradually adopted this method, without precedent to work by, until he reached his present state of perfection. At first he used whatever came most conveniently to hand—a pint or a quart jug, or a clean Higginson's syringe—but for a considerable period he has used Lawson Tait's apparatus, which he has improved by adding a ball free from valves to facilitate the starting of the siphon action. A full stream of water, such as this apparatus gives, removes all clotted and fluid blood, serum, débris of broken-up ovarian tumor, or fibrinogen, much more effectually than it is possible to do by any other means, and without any irritation of the peritoneum. It is especially useful in cases of ruptured colloid tumor, for the warm water rapidly dissolves out the colloid matter, which in these cases is so frequently found attached to the omentum, appendices epiploicæ, etc. He has never known evil results follow the use of water, but he has several times regretted that he did not resort to it. Nor is he at all particular in getting all the water away. In ruptured colloid tumor, every one who has had experience, he says, knows that the peritoneum is usually covered with a very delicate layer of capillaries, the slightest sponging of which causes serious injury and oozing. In these cases also I remove no more water than comes to the surface. In a long discussion of the bad results obtained by other operators in washing out the peritoneum, Dr. Bantock attributes these results to the employment of some form of antiseptic materials in the water which become absorbed or in some way poison the patient. He says it is too late to deny the possibility of the absorption of carbolic acid by the peritoneum. There are too many observations on record to prove the fact beyond a doubt. We know also that as

in the case of corrosive sublimate or any mercurial preparation, some persons are peculiarly sensitive to its action, and that while in a large majority of cases no harm may accrue, yet now and then a case is met with in which this idiosyncrasy exists. This is the only rational way of accounting for the large number of deaths due to the use of carbolic acid, and more especially corrosive sublimate. He protests, then, against the employment of any so-called germicide substance in flushing the peritoneum, and cannot too strongly insist on confining the surgeon to plain water as at once perfectly innocuous and thoroughly efficient.

2. *The Treatment of the Pedicle.*—In the beginning of the year 1876, dissatisfied with the clamp, he announced his intention of exclusively employing the ligature until he had settled the question to his own satisfaction. Since the 25th of November, 1875, he has used it exclusively, and he has now the satisfaction of witnessing its almost universal adoption. He soon, however, found that there were difficulties in the way, for he lost his nineteenth case from the slipping of the outer edge of the pedicle—that edge which consists of two folds of the peritoneum with its contained vessels. To obviate this source of danger he adopted the plan of first securing this fold by a separate ligature before transfixing for the main ligature. He prefers the figure of eight loop in the ordinary cases.

3. *Opium.*—It was about the time he resorted to flushing the peritoneum that he also discontinued the use of opium after operations. His mortality, he calls attention to, has been under 4 per cent. since discontinuing its employment. Not only have the patients recovered in larger numbers, but they have recovered better.

4. *General After-treatment*—(*a*) *Vomiting.* It is now a long time since he came to the conclusion that the best way of arresting sickness was to keep the stomach as quiet as possible by preventing anything getting into it. No food is allowed for many hours after operating. He prefers operating in the morning for that reason. If the stomach is found to contain some watery mucus which the patient is unable to get rid of by vomiting, a few ozs. of hot water will usually suffice to clear out the stomach. (*b*) *Thirst.* For this distressing desire the patients are allowed to rinse their mouth with warm water. Ice in any way is not tolerated. (*c*) *Peritonitis.* According to this writer peritonitis arises from causes operating within the peritoneal cavity and causes outside of it. The chief of the former, which he does not stop to enumerate, can be obviated largely by the use of the drainage tube. Or the scraping of the peritoneum may be found necessary. The latter can be relieved oftentimes by removing the offending material from the intestinal canal. This he prefers to do by means of injections. In the condition in which Tait and Smith give salines he believes in adopting the opposite course. In his experience purgatives have always aggravated the condition.

DR. H. NEWELL MARTIN'S LECTURES.

Dr. H. Newell Martin is delivering a series of lectures upon the "Relations of Psychology to Physiology," at Johns Hopkins College.

PRACTICAL NOTES.

DANGER OF LAPAROTOMY PERFORMED BY GAS LIGHT.

ZWEIFEL has observed on several occasions when laparotomy has been performed by gas light, that not only the patient, but the operators experienced a slight roughness of the throat, especially when the operation was a protracted one. Several patients who had undergone operations at the Gynecological Clinic at Leipsic, in which this roughness was experienced, subsequently developed catarrhal pneumonia. A patient who had completely recovered after operation afterwards succumbed to this pulmonary inflammation. The cause is sufficiently obvious. The chloroform becomes decomposed by the light of gas or petroleum. The smell of the products of this decomposition has sometimes become so pronounced that it has been thought some material was burning in an adjoining chamber.—*Gazette de Gynécologie.*

A NEW DUSTING POWDER.

DR. KIEZER publishes an interesting paper on the use of salol as a dusting powder. He applied it in the following combination:

Salol	ʒj.
Amylum powder	ʒj.

A varicose ulcer, in which all kinds of treatment had invariably been tried, was nearly completely cicatrized six weeks after the first application of salol. Six other cases of ulcerated leg were treated with the salol dusting powder; in all of them except one the success was equally marked as in the first case. Excellent services were also rendered by the dusting powder in cases of sycosis, burns, scalds, wounds, defects of the skin, etc.—*Prov. Med. Journal.*

ON THE PROPHYLACTIC VALUE OF PULMONARY GYMNASTICS.

DR. GÆTHGENS, of Riga, points ("Proceedings of the Riga German Medical Society," 1889, p. 547) to a great prophylactic value of systematically training the lungs. A thorough ventilation of the organs, more especially of their apices, requires a certain muscular strength, as well as an erect carriage of the body. Even in persons with a normally-built chest an habitual defective respiratory action is followed, in course of time, by a permanent pulmonary weakness and a decrease in the capacity of resistance towards any pathogenic principles finding their way into the lung. In subjects with an hereditary phthisic predisposition—that is, in subjects with a poorly-made chest, flabby muscles and lowered power of resistance—the dangers of a defective respiration are

still by far greater. In addition, in either of the categories the dangers are not limited to a train of pulmonary diseases, but also include various anæmic or chlorotic disturbances, as well as nervous affections. Hence, the pulmonary gymnastics are of a paramount practical importance, and should be systematically resorted to in all children, and that at a possibly early age. In other words, every child's respiratory organs should be methodically trained by means of certain physical exercises, consisting mainly of steady and deep respirations in free air, the child standing or walking in a perfectly upright position. Once the habit of thoroughly ventilating the lungs has been firmly established by a training course of this kind, the child unconsciously or instinctively retains it for life. The author is about to initiate the gymnastic courses of this sort on a large scale.

ASSOCIATION NEWS.

American Medical Association—Forty-first Annual Meeting.

Section of Obstetrics and Diseases of Women.

The officers of the Section of Obstetrics and Diseases of Women respectfully request those who desire to read papers in that Section at the meeting of the American Medical Association to be held in Nashville, Tenn., May 20–23, to communicate the titles thereof to either of the undersigned not later than January 15, 1890.

WILLIAM WARREN POTTER, Chairman,
284 Franklin St., Buffalo, N. Y.
JOSEPH HOFFMAN, Secretary,
126 W. Diamond St., Philadelphia, Pa.

MISCELLANY.

JABORANDI AND THE HAIR.—Some discussion has taken place as to the use of jaborandi in connection with the hair. The senior surgeon to the London Skin Hospital states that it is a valuable drug in the treatment of diseases of the hair, promotes the growth in certain cases and influences the color in others. He deprecates its use, however, except under medical advice.—*British and Colonial Druggist.*

LETTERS RECEIVED.

Dr. J. G. Stewart, Murrysville, Pa.; Dr. Wm. Snow, Jr., Ayer, Mass.; Dr. N. F. Tanski, Cincinnati, O.; Dr. Wm. H. O. Taylor, Union Hill, N. J.; Provident Chemical Works, St. Louis, Mo.; Dr. Henry B. Baker, Lansing, Mich.; Dr. C. R. Parke, Bloomington, Ill.; Dr. H. Holbrook Curtis, Chicago; Dr. G. L. Magruder, Washington; Dr. D. Johnson, Northfield, Vt.; Dr. Geo. H. Rohé, Baltimore, Md.; Dr. M. R. Crain, Rutland, Vt.; Trübner & Co., London, Eng.; Dr. J. Owens, St. Paul, Minn.; Drs. Brown & Irion, Fort Worth, Tex.; Western Pennsylvania Medical College, Pittsburg, Pa.; Dr. Wm. P. Dewees, Salina, Kan.; Dr. H. W. Williams, Boston; Dr. Geo. Cowell, Tecumseh, Mich.; Maltine Manufacturing Co., New York; Dr. D. B. Collins, Muscoda, Wis.; Lutz & Movius, New York; Dr. J. B. Summers, Milton, Ind.; Dr. C. C. Hunt, Dixon, Ill.; Dr. Ira McEwen, Mound Valley, Kan.; Dr. Walter C. McDonald, Trenton, N. J.; Dr. S. O. Kengla, San Francisco, Cal.; Dr. A. B. Frazer, Elbridge, N. J.; Dr. P. L. Brick, LeMars, Ia.; Dr. W. W. Taylor, Memphis, Tenn.; Dr. H. D. Judkins, Jasper, Minn.; Dr. D. D. Rose, Dodge City, Kan.; Dr. S. B. Heiner, Lima, O.; Dr. J. A. Martin, Palestine, Ill.; The Subscription News Co., Chicago; Dr. A. R. Baker, Cleveland, O.; Dr. W. C. Owen, Newburg, Mo.; Dr. A. G. Young, Augusta, Ga.; F. A. Davis, Philadelphia; Century Chemical Co., St. Louis, Mo.; Dr. A. B. Newkirk, Los Angeles, Cal.; N. Murray, Baltimore, Md.; Dr. J. B. Andrews, Buffalo, N. Y., Dr. Theo. Griffin, Baxter Springs, Kan.; Dr. C. W. Richardson, Washington; J. H. Bates, New York; King's Medical Advertising Agency, New York; Dr. J. A. Etheridge, Eatonton, Ga.; Dr. A. L. Hummel, Philadelphia; Dr. George Minges, Dubuque, Ia.; Dr. George Duffield, Detroit, Mich.; Dr. T. B. Greenley, West Point, Ky.; Valentine's Meat Juice Works, Richmond, Va.; Dr. R. J. Dunglison, Philadelphia; Dr. M. A. Bogie, Kansas City, Mo.; Dr. D. C. Ewing, Batesville, Ark.; Clapp's Subscription Agency, White Pigeon, Mich.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from December 14, 1889, to December 20, 1889.

By direction of the Secretary of War, Lieut.-Col. Charles T. Alexander, Surgeon, will be relieved from duty as Medical Director, Dept. of the Columbia, on receipt of this order at the Hdqrs. of that Dept., and will report in person to the Commanding General, Div. of the Atlantic, for the purpose of preparing for, and becoming familiar with, the duties of attending surgeon in New York City. He will also, upon his arrival in New York, assume the duties of examiner of recruits in that city.

Major William F. Waters, Surgeon, will take temporary charge of the office of Medical Director, Dept. of the Columbia, upon the relief of Lieut.-Col. Alexander, and perform the duties pertaining thereto. S. O. 291, A. G. O., Washington, December 14, 1889.

First Lieut. R. R. Ball, Asst. Surgeon, is relieved from temporary duty at Ft. Sill, I. T., and will return to his proper station, Ft. Riley, Kan. S. O. 182, Hdqrs. Dept. of the Missouri, Ft. Leavenworth, Kan., December 12, 1889.

With the approval of the Secretary of War, the leave of absence granted Capt. C. N. B. Macaulay, Asst. Surgeon, in S. O. 166, Dept. Mo., November 8, is extended one month. Par. 10, S. O. 294, A. G. O., December 18, 1889.

Capt. George McCreery, Asst. Surgeon U. S. A. (Ft. Warren, Mass.), is granted leave of absence for one month, to take effect upon the arrival at that post for temporary duty of Capt. Samuel Q. Robinson, Asst. Surgeon. Par. 6, S. O. 289, Div. Atlantic, December 18, 1889.

Capt. Samuel Q. Robinson, Asst. Surgeon U. S. A. (Ft. Hamilton, N. Y. H.), will proceed without delay to Ft. Warren, Mass., and report to the post commander for temporary duty. Par. 5, S. O. 289, Div. Atlantic, December 18, 1889.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending December 21, 1889.

Asst. Surgeon I. W. Kite, promoted to be a P. A. Surgeon, U. S. N.

Asst. Surgeon E. P. Stoner, promoted to be a P. A. Surgeon, U. S. N.

Asst. Surgeon O. D. Norton, promoted to be a P. A. Surgeon, U. S. N.

Asst. Surgeon Chas. P. Henry, placed on the Retired List, U. S. N.

Asst. Surgeon Geo. McC. Pickerell, ordered to Navy Yard, Washington, D. C., for temporary duty.